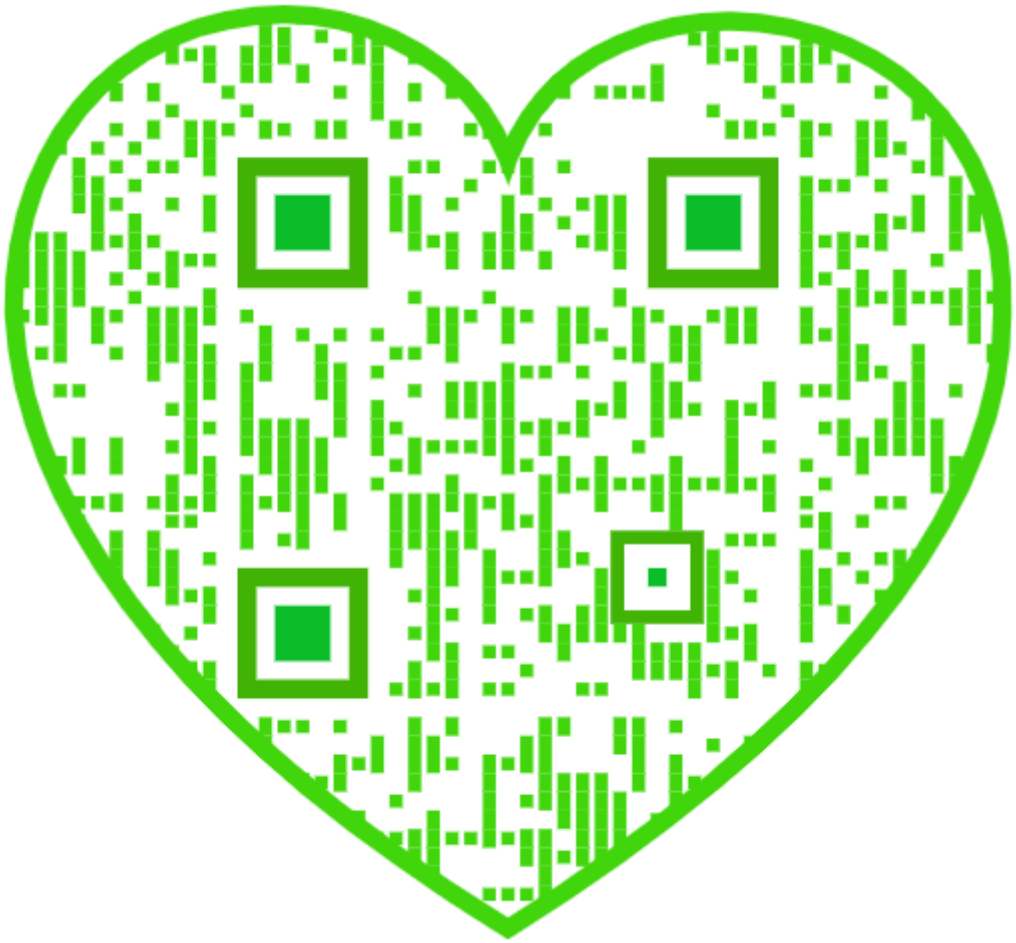

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"Wherever we find trees, shrubs, flowers, and lawns, well arranged and neatly kept up, be it in park, estate or less pretentious home grounds, we see reflected a spirit of refinement which makes for good citizenship."

The Orchard, Lawn and Garden Guide

A Ready Reference Guide

For the Growing of Vegetables, Shade and Fruit Trees, Flowers and Shrubs. Lawn Making, Pruning and Spraying, etc.

BY

GEO. H. REED

2nd Edition

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PREFACE

The first edition of this book under the name of "The A. B. C. Garden Book," published in the spring of 1920, was a small booklet on vegetable gardening. The book was hardly out of press before I realized the demand for a larger and more complete book, covering a wider field.

This is my second effort to bring before the public a book that will be useful to city and small town gardeners, and while I have exercised every care in choosing reliable information, I can scarcely hope to have escaped errors.

With many years experience in gardening, planting, pruning and spraying, as well as propagating, soiling and lawn-making, I have here tried to give the reader the benefit of this experience.

Should you find any errors or important omissions, I would appreciate your calling my attention to them, as it will be helpful to me in compiling other editions.

I am indebted to Henry A. Dreer Co., Philadelphia, Pa., for an article on floral culture, J. Van Lindley, Pomona, N. C., on "Fruits for the South," J. M. Thorburn & Co., Seedsmen, 54 Barclay St., N. Y., on "Why Some Seed Fail to Grow."

February 1, 1921. GEO. H. REED.

LYNCHBURG, VA.

DEDICATION

To the thousands of home-makers and builders, of the Virginias and Carolinas, who love and appreciate the comforts and enjoyment of a beautiful home, I dedicate this guide. Believing that it will prove helpful to you in developing a good garden, shrubs, trees and beautiful lawns.

GEORGE H. REED.

FOREWORD

To the city dweller, the Suburban residenter, and to all who only have a small piece of ground that you think worthless, wherever you may reside, should you be so fortunate as to secure this book, do not cast it aside, but study it, as it will enable you to make profitable and beautiful, that which has been an eye-sore and a menace to health, in so many instances "The Back Yard."

"If he who causes two stocks of grass to grow where one grew before is a public benefactor,"

What shall we call him, who causes vegetables to grow and flowers to bloom in places that before were unsightly and often unhealthy, and at the same time becomes places of beauty, pleasure and pride.

I have known the compiler of this little volume for years, and it has always been his ambition to see the waste places beautified and the back yards become places of as much or more pride than the front, and with this idea in view this little volume is offered. Could you but see some of the transformations that he has wrought, you would exclaim why was this not done before.

The compilations are not theoretical, but the result of practical experience and the instructions so simple that any intelligent person can follow, and get good results, as all technical terms are left out.

It is to be hoped that the efforts put forth will be the cause of much pleasure and profit to those who may study its pages. Spend your spare moments profitably and pleasantly in following the directions herein laid down.

H. D. DERRICK,
ROANOKE, VA.

PART ONE

THE ORCHARD, LAWN AND GARDEN GUIDE

THE VEGETABLE GARDEN

A GARDEN is a place where plants of all kinds are cultivated, as well as trees, vines and shrubbery, etc. Any cultivated piece of Mother Earth is a garden.

It used to be (but "used to be" is now passed away) in the old grandfather days that the selection of a garden site was a carefully-thought-out place, taking in consideration the drainage, exposure and, above all, the soil had to be deep, loamy and mellow. The garden had to be close to the residence dwelling, fenced in generally with a paling fence, supported by locust posts set 3½ feet in the ground. Between 5 and 50 loads of well-rotted stable manure were used (depending on the size of the enclosure) during the winter months. Generally, in February, this well-manured plot was plowed deep with a good team and left lay to "mellow" until the first warm days of March, when it would be stirred again with the shovel plow, then harrowed with the spike tooth and rows laid off for onions, English peas, and a few rows of early Irish potatoes. This was grandpa's part in the garden for that year. Grandma's part came next, assisted occasionally by Johnny and one of the girls; this trio did the balance of the garden work the whole season through.

MY AUNT'S GARDEN

Many years ago, when I was a mere boy, I used to visit my aunt's garden to view her wonderful garden. It surely was a charming spot and, like a panorama, it passes before my eyes even to-day. The garden was laid off into four squares with walks dividing the four beds. Along the walks were borders of Phlox, Sweet William (Dianthus Barbatus), Pinks, Delphinium, Lark Spurs, Dusty Miller (Centaurea Candidissima), Beautiful Eye (Correopsis), and other plants. What a blending of colors all during the summer these annuals would present as they drooped their fragrant heads upon the graveled walks. Other walks were edged with herbaceous plants, such as Catnip, Sweet Fennel Sage, Summer Savory, Thyme and Saffron, while around the fence were Hollyhocks, Golden Glow, Snowball Bushes, Lilacs, and a variety of other gorgeous plants that did not fail to attract the eye of the visitor with their showy decorative beauty. In patches here and there along the borders crocuses and other bulbs used to "pop up" early in the spring as if by magic in my aunt's garden every year. Of course in the far corner was an old rustic arbor which supported two old Concord Grapes that entwined themselves in a thousand twists around the poles of the arbor, coming in contact now and then with an unnamed rambler rose.

How neat and smooth the weedless soil did look. There were rows of cabbage, celery, peas, okra, salsify, potatoes, bunch beans and beds of onions and loose-leaved lettuce, while down near the old grape arbor were 50 hills of old-fashioned colored pole lima beans, climbing up 10-foot hickory stakes that had been in use for probably a dozen years. Many and varied were the vegetables grown in the old-fashioned gardens, which helped to fill the bins in the cellar with turnips, potatoes, rutabagas and other roots; the pantry shelves with canned

corn, tomatoes, beans, okra, cauliflower, etc.; the smokehouse with a stand of sourkraut and a keg of pickles, while up in the attic, under the rafters, hung paper bags of seed for next year and herbaceous plants for any and all ailments of the household or neighborhood during the winter months.

THE GARDEN OF TO-DAY

How very different is the gardening of to-day compared with grandma's garden of fifty years ago. The average city or village gardener must work within the confines of an enclosure of 100 x 50 feet, on which a dwelling, several outbuildings, walks, flower beds, etc., must be located. This leaves only a very small plot for a vegetable garden, and one must study gardening very closely to make a success of it.

The city back yard or vacant lot garden provides a supply of vegetables at home without transportation or handling costs. Vegetables from the home garden are fresher and more palatable than those bought from a distance. Many persons who work in offices, stores and factories have time mornings and evenings that may well be devoted to the cultivation of a garden, thus utilizing spare time and idle land for food production.

HUMUS FOR GARDEN IN OCTOBER

Though most crops may now be harvested and safely stored for the winter, the home gardener should not rest on his oars until everything possible has been done with a view to being prepared for an early start next spring and improving, if possible, the quality of his soil. The majority of soils lack humus, which is usually supplied in the form of stable manure, but manure is now so scarce and expensive that plant food is in many gardens limited to commercial fertilizers. Good ferti-

lizers are all right in their way, and necessary, but they do not supply the humus which adds so much to the mechanical condition of soils.

It is well that humus can be added in other forms than animal manures; thus green crops may be grown to turn under, which, as they decay in the soil, become humus, while the plant food is given to the crops in the form of fertilizers. Soiling, or green-manure, crops most generally used are clovers, vetch, buckwheat, cowpeas, and rye. For poor soil, clovers or cowpeas are best, due to the nitrogen they gather from the atmosphere and convey to the soil through their roots, a characteristic of all legumes. But it is now much too late to sow any of the cover crops named except rye.

All vacant ground should be spaded over or plowed, given a dressing of lime, raked or harrowed, and seeded with rye; it is very hardy and will continue growing during all mild weather, and when turned under in spring will furnish considerable humus. In gardens where manure is plentiful and cover crops are not necessary, or where the ground has been cleared too late to sow rye—in most localities it may be sown up to the end of October—the ground should be spaded or plowed and left rough over winter.

Give the land a dressing of lime. Besides sweetening the soil it destroys many insect pests and disease germs. By the aid of rain, snow and frost it will gradually work its way into the soil. Apply in fine powder form, at the rate of twenty pounds for forty square yards.

CROP ROTATION

The chief success lies in crop rotation, for which the following schedule should help the small gardener:

Early peas, March 1st to 30th; owing to locality; followed by celery, August 1st to 10th.

Early beets, April 1st to May 1st; followed by celery, August 1st to 10th.

Early lettuce, as soon as soil is in workable condition in spring, followed by carrots, May 1st; followed by celery, August 1st.

Early tomatoes as soon as danger of frost is over, with fall turnips sown at last cultivation of tomatoes.

Early carrots, April 1st; followed by late snaps, August 1st.

Onion sets planted in previous fall and sold as green onions in springs, followed by tomatoes with turnips at last cultivation of tomatoes.

Early radishes as soon as soil can be worked, followed by beans, May 1st to 10th; followed by celery, August 1st to 10th.

Parsnips, May 1st to 10th, occupying whole season.

Early cabbage, April 1st; followed by late snaps, August 1st.

Early peas as soon as ground can be worked, followed by late tomatoes, latter part of June, with crimson clover sown at last cultivation.

Salsify, May 1st to 10th, occupying whole season.

Early radishes, as soon as soil can be worked, followed by beets, June 1st to 15th; followed by kale in fall.

WHAT CAN BE REALIZED FROM A SMALL GARDEN BASED ON ONLY ONE CROP AND NORMAL PRICES

Celery, 150 bunches, at 15c	$22.50
Beets, 45 bunches, at 10c	4.50
Fifty bunches lettuce, at 8c	4.00
Forty bunches radishes, at 8c	3.20
Forty gallons of tomatoes, at 40c gallon	16.00
Carrots, 40 bunches, at 6c	2.40
Onions, 60 bunches, at 12c	7.20
Beans, 25 gallons, at 40c gallon	10.00
Parsnips, 35 bunches, at 5c	1.75
Twenty-four heads cabbage, at 10c	2.40
Peas, 12 gallons, at 40c	4.80
Salsify, 40 bunches, at 10c	4.00
Total	$82.75

This amount does not include the sale of currants, gooseberries, strawberries, and, as stated above, on only one crop.

A BIG LITTLE GARDEN

A few years ago the writer was invited to visit a garden in Roanoke City that was being cultivated by a mechanic foreman in a large shop. All the gardening was done after 5:30 p. m. and on holidays. The garden was about 35 feet long and 20 feet wide. It was the largest little garden I've ever seen. First two rows were English peas in full bearing, next two rows about 100 stalks head lettuce, two rows bush beans hanging full, two rows white plume celery, following two rows of Paragon tomatoes full of fruit; around the edges or sides of the garden were rows of endive, parsley and salsify. There was

not even one weed in the whole plot. All the plants, especially the tomatoes, were healthy, strong plants, free from insect pests. Around the house, in the border beds, were planted and in full foliage, about 18 inches apart, Detroit early beets, and between each beet was an African Marigold in bloom; for an edging plant was used lettuce and parsley. Over the front porch grew pole limas that entwined themselves around the rambler roses, the limas were the Leviathan sort and hung in clusters. On the opposite side of the house were border beds of saffron, asters, Ruby King pepper, scarlet sage, cabbage and geraniums. This man showed me a bushel of yellow Danvers onions he raised where now grew his tomatoes, a few jars of pickles that grew where he then had lettuce, and late in August he planned to sow his garden in kale for salad. His wife showed me the pantry shelves filled with jars of canned peas, tomatoes, pepper, pickle, beets, and lima beans, all products of her husband's "big little garden" in the corner of their back yard. This garden was made a success by crop rotation and properly working each plant.

CULTIVATING THE GARDEN

No garden can be a paying proposition without intensive cultivation. If possible, spade or plow from 8 to 10 inches deep your garden in the fall or early spring, supplying well-rotted stable manure or other good compost to turn under. Prepare your soil for small seeds and plants to a fine, smooth surface. After plants are 2 inches high, with a hilling hoe or rake, cultivate them shallow to conserve moisture. Shallow cultivation of plants is much better than deep cultivation, as is proved in dry seasons. The deeper you cultivate the less moisture you will have around your plant. Don't let a single weed grow in your garden. A good garden rake is a good cultivator, especially if it is used in a criss-cross way, working

one way to-day and to-morrow raking over same ground in the opposite way. Deep plowing and shallow cultivation is the rule.

PURCHASING SEED

Buy seed from a reliable dealer. Insist on buying seed which have been tested as to their vitality and germinating qualities. Poor seed are dear at any cost, and only the best should be planted.

What a disappointment, as well as loss of valuable time and money, if, after a whole season's toil and care, you discover the fact that your cabbage did not head, your tomatoes were under size and hardly fit for table use, the squashes, cucumbers and melons bloomed profusely but no fruit matured. Be particular of the seed Mrs. S-and-So hands you across the garden fence, she may have good intentions, but she says Mrs. Somebody Else "gave them to me and told me how good they were a few years ago, so I thought I would divide with you."

Watch these seed. They may be old, and while they may look good and even grow to good healthy plants, it is not unlikely that they are too old to produce fruit.

WHY SOME SEED FAIL TO GROW

Seeds of best quality will sometimes fail through improper treatment. Thus, a small seed may be sown so deeply that the young plant cannot reach the surface. *More failures result from disregard of the conditions necessary to germination than from inferiority of the seeds used.*

These conditions are: A proper temperature, sufficient moisture and free access of air. Besides these, the soil must be in proper condition and present no physical obstacles to the growth of the young plant. If heavy rains have compacted

the surface of the soil, and the sun has baked it to a hard crust, it will be impossible, even if all other conditions are favorable, for the seedling plants to force their way through it, and many perish from this cause alone.

Seeds differ greatly as to the temperature required for germination. Beets, cress, peas, etc., germinate rapidly at a temperature of 45 degrees, but if melons and other seeds of that family, bush or pole beans, and other plants of subtropical origin are sown under the same conditions, they will be apt to decay, as for their prompt germination they require a heat of at least 60 degrees. For this reason many seeds fail yearly from too early sowing.

The second condition, proper moisture, is likely to be violated by an excess rather than by too small a portion. The proper amount is that which a well-drained soil will naturally hold. Free excess of air is all-important, and this is interfered with by an excess of water in the soil.

In germination, complex chemical changes take place in the seeds, in which the air performs an important part. A portion of the seed is consumed, carbonic acid gas being given off in changing the starch and other constituents of the seed into nutriment to forward the growth of the germ or embryo plant, which depends upon the contents of the seed until it forms roots below ground and leaves above, and is able to sustain itself.

Besides these conditions affecting the germination of the seed, the young plants, after they have made their way to the surface, are liable to various accidents; a sudden current of very cold air, or a continuous drying wind may check their growth or destroy them altogether.

In addition, there are numerous insects, both below and above ground, that may attack the plants, some of them being so small that they often destroy a crop before they are discovered.

We may also mention the well-known tendency of many vegetables to revert to their original types, notwithstanding the care of the seed-grower; the yellow-podded wax beans becoming green, the yellow and white celery becoming more or less green, dwarf peas becoming running sorts, etc.

PLANTING SUGGESTIONS

In preparing the following guide for planting, with reference to varieties suitable for this climate, I am giving the names of varieties that I have cultivated with success. Of course you may have a pet variety of bunch beans for instance, that you have found better than the kinds I am listing, and if such is the case, I would suggest that you follow up your own method.

There are many kinds and varieties of vegetable seed on the market, most of them are good, tried and true to name sorts, but many varieties that do well north of Maryland would prove a failure in this part of the South. The following vegetables I have grown in this section and will vouch for their success if the proper attention is given to their culture and habits:

ARTICHOKE

JERUSALEM. GREEN GLOBE.

Sow seed in hotbed in March, transplant in rows 3 feet apart, 2 feet apart in row, give protection during winter. If properly cared for will last from four to six years.

ASPARAGUS

PALMETTO. GIANT ARGENTEUIL.

Set roots in beds 5 feet wide, 3 rows to a bed, 1½ feet apart in row. Asparagus should have a deep sandy loam soil, enriched with stable manure every fall. An application of wood

ashes over the beds is beneficial to the plants if applied early in the spring or during the winter. Set roots about 6 inches below surface of the beds.

If RUST appears on tips apply dry sulphur with a hand duster on dewy mornings after beds have been cut several weeks. For SLUGS, apply slacked lime.

BEANS

DWARF SNAPS.
- Tenn. Green Pod.
- Black Valentine.
- Stringless Green Pod.
- Burpees Giant.
- Refugee.

SHELL OR WINTER BEANS.
- Boston Navy.
- White Marrowfat.

DWARF WAX.
- Refugee Wax.
- Wardwell Kidney Wax.
- Valentine Wax.

POLE BEANS.
- Kentucky Wonder.

SCARLET RUNNER.*

Pole beans have grown into disfavor because of the American characteristic of seeking short cuts and labor-saving devices. Bush beans have the call, particularly in the string bean class. There are two very good reasons for growing pole beans instead of the bush variety.

First of all, a pole bean furnishes a vastly greater quantity of beans per plant than does the bush variety and identical in quality. Bush limas are not prolific bearers, comparatively speaking, and the pole lima is much to be preferred.

Secondly, the bearing season is almost twice as long.

A third reason is that it is much less wearing on the back and legs to pick beans standing up than it is stooping over and

*Scarlet runner beans are very ornamental, producing beautiful bright red flowers and usually are planted on trellises, arbors, and fences. They are also a splendid shell bean for winter use.

squatting down in the hot sun, as is necessary in harvesting bush beans.

One reason pole beans are grown so little compared with the dwarf varieties is because of the trouble and difficulty of securing and setting poles. It isn't as bad a job as it looks, for once poles are secured they may be put away in the fall and used for several seasons. Putting them in place is something of a job, but it is worth the trouble.

Pole beans take longer to come into bearing and are a fine continuation crop for bush beans.

One usual mistake is in getting too short poles. On six-foot poles the vines will tumble back when they have reached the top, intertwine and smother themselves. It is best to get eight or nine-foot poles and set them a foot deep in the ground. Carry strings from the top of one pole to another and the vines will take the strings in a hurry, leaving the beans to hang down in plain sight where they can be easily harvested.

If there is a scarcity of poles, make a wigwam or tent planting. This is done by planting the beans in a circle around the pole from two to two and a half feet from the base of the pole, the beans about eight inches apart. Let strings come from the top of the pole to each bean and the vines will make the tent, once they get going.

A very practical and easy way to grow pole beans is as porch vines instead of morning glories or wild cucumbers.

POLE LIMAS.	BUSH LIMAS.
Carpenteria.	Burpees Improved.
King of the Garden.	Fordhook.
Leviathan.	

As a farinaceous food for man, the bean is considered far superior to any other legume, and next to wheat in importance.

About May 1st, when the ground is warm, sow in drills 2 feet apart, about 3 inches deep; drop the beans 3 inches apart

in drills, and cover 2 inches. Sow every two weeks to August 15th for a succession.

Lima beans should not be sown as early as the other sorts, and poles should be set for the running kinds at the time beans are planted. Pole limas are planted 3 in a hill, hills 3 feet apart.

Pod-spot is a brown-red scabby spot appearing on stems and pods, particularly on yellow-podded snap beans. In saving seed from beans, save only the ones free from these spots, as the infected ones lie dormant during the winter and become active when the bean is planted. For RUST, Blight or Pod-Spot, spray with Bordeaux 4-4-50 at intervals of 10 days or two weeks, if possible from underside of leaves. Dusting with some of the many formulas on the market will also be effective, especially those containing tobacco dust.

BEETS

DETROIT DARK RED. CROSBY'S EGYPTIAN.
CRIMSON GLOBE.

Sow seed in drills 1 foot apart and 1 inch deep; when plants are large enough, thin out to 4 inches apart. Seed can be sown in March and July.

BROCCOLI

A vegetable which resembles cauliflower, and often grows where cauliflower does not thrive. Culture same as cauliflower. Plants should be watered in dry weather. Cultivate often.

BROOM CORN

EVERGREEN. The best variety to plant in this section.

Sow in May, in drills 3 feet apart, thin out to stand 3 inches apart in the row.

BRUSSELS SPROUTS

Miniature heads of cabbage which grow on the stems of the stalk. Sow seed about May 15th; transplant when 4 inches high in rows 30 inches apart, 20 inches apart in the row. When the heads begin to crowd, the lower leaves should be broken off the stem to give them plenty of room. Brussels Sprouts are best for cooking after a slight frost.

CABBAGE

EARLY.	LATE.
Copenhagen Market.	Late Flat Dutch.
Early Jersey Wakefield.	Danish Ballhead.
Charleston Wakefield.	

Sow seed in a bed or in shallow boxes indoors in March. Transplant in rows 12 inches apart, and plant plants in row 18 inches apart. Late cabbage should be planted the last of June or first of July. Cabbage should not be planted in the same location for two successive years. Give thorough and clean cultivation.

CABBAGE WORMS or the green caterpillars hatch from eggs laid by the common white butterfly. To control this pest, spray with kerosene emulsion, if cabbage is not heading; if heading, apply hellebore. A good way to get rid of these worms is to go to the patch every few days just before sunset and inspect the underside of leaves and pick off the worms. They feed mostly at night on the tender leaves of cabbage and other plants.

CARROT

OXHEART HALF SHORT. DANVER'S HALF LONG.

Sow in drills a foot apart and thin to 2 inches. Carrots do best in a warm, deep fertile soil. Cultivate thoroughly. Car-

rot tops are sometimes used as ornamental foliage plants for indoors. Take one or two small plants and plant in a 4-inch pot, cutting off part of the root. They make fine decorative plants, with beautiful fronds hanging over sides of pot.

CAULIFLOWER

SNOWBALL. DANISH GIANT.

Sow seed in hotbeds or window boxes in February and transplant in cold frames. When hard frosts are over, plant in rows 3 feet apart, 2 feet apart in row. When heads begin to form, tie the tops of the leaves over the center. Spray or dust for WORMS same as cabbage.

CELERY

EARLY.
White Plume.
Golden Self-blanching.

WINTER.
Giant Pascal.
Winter Queen.

Sow in hotbeds in March or in open ground in April. When plants are 3 inches high transplant to another bed until July, when they are transplanted to a shallow trench (about 6 or 8 inches deep). Cut off taproot when planting in trench, and firmly press the soil to each plant; set plants 6 to 8 inches apart. As the plants grow, draw earth from sides of trench to plants. Keep down all weeds, and fertilize with liquid manure after plants are set. Where you have no root cellar, it is best to protect the stalks with leaves or straw and cover with boards for winter. Another way is to dig a trench in the garden and transplant the stalks in trench close together, protecting them with leaves and boards in severe weather.

For CELERY BLIGHT or RUST spray with Bordeaux mixture (see formula).

CELERIC

TURNIP ROOTED CELERY.

The tender tops of Celeric leaves is used for soups, etc. Roots can be stored away like beets. Cultivate same as celery, but is not necessary to blanch.

CHICORY

WHITLOOF.

The roots are easily produced from seed, sown in May or June, in rows as one would endive. They are taken up after a few hard frosts and cared for the same as Turnips or similar crops. Used only as a winter vegetable, the top part only being edible. Plant under a bench in the greenhouse or a light, dry, warm portion of a cellar in a bed of rich garden soil 12 inches deep. Place about 6 inches apart each way. The top growth remains intact, as the illustration shows, and may be cut anytime after 5 inches growth, before the heads begin to expand. Roots should be set in the soil the same depth as they were originally in the garden. A continuous supply of this delicious winter vegetable can be had from December 1st to April 1st. A cold frame makes also an ideal place for forcing them in the late winter or early spring months.

CUCUMBERS

LONG GREEN.	KLONDIKE.
WHITE SPINE.	EARLY FORTUNE.

Sow about May 1st in hills 3 to 5 feet apart made rich with well-rotted stable manure. Sow at intervals for a succession. For pickles, plant from June until July 15th. Thin out to 4 plants to a hill.

Good results have been obtained by planting the seed in sods turned with grass side down. It is said that there is less danger of beetle destruction by using this method.

CORN

SWEET OR SUGAR. STOWELL'S EVERGREEN.
GOLDEN BANTAM. ADAM'S EXTRA EARLY.
COUNTRY GENTLEMAN. WHITE CORY.

Plant in hills 3 feet apart each way, covering 1 inch deep and thin to 3 stalks. For succession plant every two weeks up to July 20th.

Corn does best in a well-prepared rich loamy soil and requires intensive cultivation.

COLLARDS

CREOLE. GEORGIA.

Sow seed same as cabbage.

EGG PLANT

BLACK BEAUTY. FLORIDA HIGHBUSH.

Sow in hotbeds very early in spring and transplant when 3 inches high into a second bed or into small pots. Do not plant to open ground until all danger of frost is over, as cool nights check the plants. Set out plants 3 x 2 feet. Use liquid manure once or twice after setting out.

ENDIVE

WHITE CURLED. BROAD LEAVED BATAVIAN.
GREEN CURLED. Best for fall.

Endive is one of the most wholesome salads grown for winter use. For early use sow in April; for late or main crop, in June or July, in drills 12 inches apart; when plants are 2

or 3 inches high, thin to 10 inches apart in row. When fully grown it should be loosely tied together at tops and earth drawn to plants and blanched like celery.

GOURDS

AFRICAN PIPE.
APPLE SHAPED.
BOTTLE GOURDS.
CALABASH. Used for dippers.
HERCULES' CLUB.
LUFFA. (DISH-RAG, SPONGE GOURD).
PEAR SHAPED.
SPOON.
TURK'S TURBAN.

Rapid growing, interesting annual climbers. Ornamental and useful. Give thorough and clean cultivation, plant along fences or on trellises.

HORSE RADISH

MALINER KREN. (BOHEMIAN).

Set the roots in spring, in rows 6 inches apart, about the same distance in the row. Late in the fall lift as many as you think you will use, cut off the top, place them in a cool cellar, covered with soil or sand; grate as wanted. A bed once planted remains for years.

KALE

DWARF GREEN CURLED.
DWARF CURLED SCOTCH.

Cultivate and grow like cabbage.

KOHL RABI

PURPLE VIENNA.
WHITE VIENNA.

Sow seed in early spring, in hotbeds or outdoors, and transplant when 3 inches high in rows 18 inches apart, 6 inches

in the row. The edible part is the root, which grows above the ground; this should be used when it attains a size of 2½ inches in diameter or less. At this stage it is extremely tender and delicious, while if allowed to get larger it is woody. Prepared and served like turnips, except that a few of the bottom leaves can be cooked with the root.

LEEK

LARGE ROUEN. MUSSELBURG.
LONDOR OR AMERICAN FLAG.

Sow early in the spring in drills 1 foot apart and 1 inch deep. When plants are 8 inches high set in a deep rich soil, in rows 12 inches apart and 6 inches in the row, as deep as possible, so that the neck may be covered and blanched; draw earth to them as they grow. The seed may also be sown in September, plants to be transplanted in the spring.

LETTUCE

BIG BOSTON. BLACK SEEDED SIMPSON.
GRAND RAPIDS FORCING. BOSTON MARKET.
ICEBERG.

Sow seed in hotbed in March and transplant in rows 1 foot apart, 8 inches between each plant, cultivate thoroughly. Head lettuce, such as the Big Boston, does not head up very well in hot weather. For a succession of crops sow seed thinly in open ground and thin the plants to 5 or more inches apart.

MARTYNIA

Unicorn Plant—Proboscidea

The seed pods used for pickling when gathered young and tender. Sow seed in open ground in May in hills 3 feet apart each way.

MUSKMELONS

JENNY LIND. EMERALD GEM.
ROCKY FORD. NETTED ROCK.

Melons thrive best in a light, rich soil. Plant May 1st to 10th in hills 4 feet apart each way. Before sewing seed, enrich your hills with well-rotted stable manure. Plant 15 to 20 seed to a hill and, after danger of bugs is over, thin to 4 plants. Melons are subject to the same striped beetle that infests the cucumber and squash, and are sprayed with the same solution. Early and repeated spraying with Bordeaux mixture is advisable.

WATERMELON

TOM WATSON. DIXIE.
SWEETHEART.
Culture same as muskmelons.

OKRA

DWARF GREEN PROLIFIC.

Pods are picked when green and tender and used in soup mixtures. Sow seed in rich ground about May 1st in rows 3 feet apart, 1 inch deep; thin to 10 inches apart in drill.

ONION

YELLOW DANVERS. RED WETHERSFIELD.
PRIZETAKER. GLOBE DANVERS.
SILVER SKIN.

Sow seed April 15th in drills 12 inches apart, and thin to 2 inches apart in row. Give thorough and clean cultivation during the summer. The seed bed must be thoroughly prepared, and if the proper cultivation is given the young plants,

large onions can be grown very easily, especially the varieties as the Yellow Danvers and Red Wethersfield.

ONION SETS

POTATO ONIONS. RED WETHERSFIELD.
WHITE MULTIPLIER. YELLOW DANVERS.

Onion sets are set in rows 12 inches apart, with sets 2 inches apart in row. If possible, set in the fall.

PARSLEY

MOSS CURLED. FERN LEAVED.

Soak seed in water a few hours before planting and sow early in spring in rows 1 foot apart, and thin to 3 inches apart in row. Be sure to prepare soil finely and pat down with the spade or hoe over the seed. Parsley seed is slow to germinate.

PARSNIPS

HOLLOW CROWN. GUERNSEY.

Sow early in spring in rows 16 inches apart, thin to 6 inches apart in rows. Frequent cultivation is necessary. The quality of the roots is improved by leaving them in the ground all winter for spring use.

PEAS

EARLY VARIETIES.
- Little Gem.
- American Wonder.
- Alaska.

SECOND EARLY.
- Abundance.
- Duke of Albany.
- Lincoln.

LATE CROP.
- Telephone.
- Pride of the Market.
- Potlatch.
- Black-eyed Marrowfat.

EDIBLE POD SUGAR PEAS.
- Mammoth Melting.

Peas are cultivated like corn or beans; soil must be well enriched and in good tillable condition. Plant in rows 3 feet apart and set stakes or brush in row for supports. A good way is to plant peas in double rows, and thus one line of brush or stakes will do for two rows.

PEANUTS

Peanuts can be grown in any good garden soil, where they will yield an abundant crop. The peanut plant enriches the soil by gathering nitrogen. One peck of unshelled nuts will plant ¼ of an acre. Shells must be removed before planting.

PEPPER

PIMENTO. BELL OR BULL NOSE.
RUBY KING. RED CHERRY.

Sow in flats under glass in March, transplant to other flats when 2 inches high. When weather is warm transplant again to rows 2 feet apart, with plants 16 inches apart in row.

PE-TSAI
(Chinese or Celery Cabbage)

This resembles in appearance and growth a head of Cos Romaine or Celery Lettuce. The heads are very firm, almost like cabbage. The flavor is delightful, not at all like cabbage, but rather on the order of Witloof Chicory or French Endive. It can be planted as a spring or autumn crop. The head does not become as high then as when sown in spring, and is adapted in that season rather as a lettuce than as cabbage. May be forced readily in a cold frame. The plants are handled much like lettuce, except that they should be set from 15 to 18 inches apart, the rows 2 to 2½ feet apart.

POTATOES

GREEN MOUNTAIN. EARLY ROSE.
IRISH COBBLER. RURAL NEW YORKER.

Potatoes require a well-drained, loamy soil. It is best to apply stable manure the year before planting. Plant good-sized pieces with not less than 2 or 3 eyes, 16 inches apart in the furrows, furrows 2½ feet apart. Spray with Bordeaux mixture for FLEA BEETLE, POTATO BEETLE and BLIGHT (see spraying formula); for control of SCAB, see formula on page 112.

SWEET POTATOES

NANCY HALL.
RED AND YELLOW NANSEMOND.

Procure good, stocky slips, set on a ridge of well-prepared soil about 10 inches apart, keep all weeds down by thoroughly working ridge, which should not be over 4 inches high. If vines make a very rapid growth, they should be clipped off so as to throw more strength in the roots. Sweet potatoes like a sandy, loose soil.

PUMPKIN

GOLDEN CASHAW. EARLY SUGAR.
LARGE CHEESE. TENNESSEE SWEET POTATO.

Sow in good soil in May in hills 10 feet apart each way. Pumpkin varieties if planted together will mix. Plant about 5 seed to a hill. If large fruit is wanted, pinch off all but a few buds. Spray or dust for beetles as in melons and cucumbers.

POP-CORN

QUEENS GOLDEN. WHITE RICE.

Plant and cultivate as other corn.

RADISH

EARLY SCARLET GLOBE. DREER'S CRYSTAL FORCING.
LONG SCARLET SHORT TOP.

SUMMER VARIETIES.
Icicle.
White Strasburg.

WINTER VARIETIES.
Scarlet China.
Round Black Spanish.

Radishes do best in a sandy loam soil. The summer kinds will make a crop within 4 to 5 weeks. Sow in drills a foot apart and a few inches apart in the row. Sow early and often. Sow winter radishes in July, August and September.

RHUBARB

VICTORIA.

Plant two-year-old roots 3 feet apart each way in a permanent bed, well enriched with manure.

SALSIFY

SANDWICH ISLAND. LONG WHITE.

Salsify is known as the vegetable oyster, and when boiled and made into cakes and fried like oysters very much resembles an oyster in flavor.

Cultivate the same as parsnips. They can remain in the garden all winter, but should be taken up before plants start to grow in spring.

SPINACH

CURLED LEAVED SAVOY. LONG SEASON.
VICTORIA.

For spring use, sow in rows 1 foot apart and 1 inch deep, as early as ground can be worked. For winter and early spring, sow in September in well-manured ground. It is well to protect with straw or leaves during the winter.

SQUASH

HUBBARD.
BOSTON MARROW.
GOLDEN CUSTARD BUSH.
SUMMER CROOK NECK CASHAW.

Plant from 10 to 15 seed in a hill enriched with stable manure. Thin to 4 plants to a hill after danger of striped beetles is over. To repel the squash-vine borer, throw a handful of tobacco dust or coal ashes around the plants. For BEETLE and BLIGHT spray with Bordeaux.

TOBACCO

WARREN.
VIRGINIA "ONE SUCKER."
WHITE BURLEY.
ORONOKA.
PRYOR, BLUE.
PRYOR, YELLOW.

Most people like a few stalks of tobacco growing in the garden. The bloom is very fragrant and attracts butterflies.

Some gardeners claim that a stalk of tobacco planted in every other hill of cucumbers or melons, helps to keep the bugs and beetles off of the vines. Sow seed in flats indoors in April, cover lightly, when large enough transplant in rows 3 feet apart each way. Give thorough and frequent cultivation.

TOMATO

Set good short, stocky plants 4 feet apart each way. Do not use stable manure too heavily. Fertilize with liquid manure or nitrate of soda. After plants are 12 inches high, the suckers should be cut from the main stalk with a knife that has been wiped off with a rag saturated with carbolic acid, this will help to keep down blight, as frequently an infected limb is cut and then a healthy one with the same blade, thus spreading from limb to limb and stalk to stalk.

Stakes or trellises should be provided for the vines and kept tied up during the fruiting period.

Tomato seed should be sown in flats indoors in February and transplanted to other flats at least 2 times to make them stocky. Set plants a few inches deeper in the row than they were in the flat.

I have grown over 25 varieties of tomatoes and have found them all good and true to name. There are over 50 varieties on the market, and I have found the following kinds probably a little better than the rest, although your particular ground or location may grow some of the other kinds better than ones here listed. Probably the STONE, RED ROCK, TROPHY, and PARAGON are the best for canning and home use, while the Bonny Best, Chalk's Early Jewel, Acme, Ponderosa, etc., are the best for slicing.

Following is a list of some of the tomatoes I have grown in this section:

Sparks Earlianna.	Matchless.
John Bear.	Ponderosa.
Bonny Best.	Trophy.
June Pink.	Stone.
Paragon.	Truckers' Favorite.
Acme.	Brimmer.

Pickling and preserving kinds:

Pear-shaped Yellow.	Ground Cherry.
Pear-shaped Red.	Grape Tomato.
Yellow Plum.	

TURNIP

PURPLE TOP.	EARLY WHITE EGG.
STRAP LEAVED PURPLE TOP.	EARLY WHITE FLAT DUTCH.

Sow early in open ground in drills 1 foot apart. For fall and winter, sow in August, broadcasting over tomato or corn ground. Take up roots just before freezing weather and store away in cellar.

RUTABAGA

THORBURN'S FAMILY. BUDLONG WHITE ROCK.
Culture same as turnips.

HERBACEOUS PLANTS

Sow early in spring in shallow drills, when up a few inches thin out.

BASIL SWEET—Seeds are used in soups, etc.
CARRAWAY—Used in bread.
CASTOR OIL BEAN—Ornamental bedding plant.
CORIANDER—Aromatic seeds.
DILL—Used for making pickles, seeds for seasoning.
SAFFRON—Used for flavoring.
THYME-FRENCH SUMMER—Used for seasoning.

PERENNIAL HERBS

BALM. PEPPERMINT.
SWEET FENNEL. SWEET MAJORAM.
LAVINDER. BROAD LEAVED THYME.
TANSY.

COLD FRAMES

Every gardener needs a cold frame and once he has one he can't realize how he ever got along without it. They are not expensive, as a practical working frame can be made of a soap box and small sash. It is nothing more than a box with a glass cover and old window sash with home made sides can be made up easily enough. The only requisite is a southern exposure and sufficient slant so that rain and melting snow will drain off.

They may be had in all sizes from the home made soap box and sash to big affairs with concrete sides and double glass

sash. The whole principle is the glass and the protection of glass is remarkable in prolonging growth.

A cold frame enables a gardener to grow head lettuce often into December unless it is an unusually severe fall. Parsley may be kept going for kitchen use and picked at every thaw.

Pansies delight in the shelter of a frame and bloom until frozen and then start right in again when it thaws in the spring. Their chief value in early spring is for starting seeds of various subjects which are hardy enough to stand considerable cold and a light freeze, such as lettuce, asters and other seeds that need to be started early.

SETTING PLANTS

Most plants should be set about ½ inch deeper than they were in the plant beds or pots. A piece of round wood 10 inches long and 3 inches round, tapering to 1 inch at little end, makes a good planting tool or dibble. Push the dibble into the ground to the desired depth, set plant in the hole and with dibble make a slanting hole about 3 inches from plant and towards the roots of plant, withdraw the dibble and fill the hole with water, which will drain towards the roots. This method will protect the plant from baking and crusting the soil, as only the dry dirt should be put around the plant when plant is set. Many plants die on account of pouring a large quantity of water in the same hole where plants are set, as the sun bakes the earth around the plant, as well as creates a steam in hot weather and withers the tender plants before they have a chance to become established. In setting celery, cauliflower and celeric, the tip ends of the roots should be pinched off, as this will give a better root system. Set plants on cloudy days or late in the afternoon. If very hot weather, protect with plant protectors or brush to shield them from the sun for a few days after setting.

WATERING THE GARDEN

If possible, do not water at all. But if it becomes necessary in very dry times, apply water to each plant and cover a little dry dirt over the wet place to conserve your moisture. If watering is done with a garden hose, use a fine mist nozzle. Do not drench or splash water on the garden too freely.

"POMATOES"

Several years ago I planted a few potato eyes in pots, after they were several inches high I cut all the branches off except one, into which I grafted the tip branch of a Stone tomato. The plant grew to a vigorous, healthy tomato stalk, and on June 6th I set plant in the open ground in the garden. In July I gathered 9 pounds of tomatoes that were true Stone in size and flavor; in September I carefully dug the plant which had borne 11 medium-sized potatoes, the top of the stalk had 17 green tomatoes. I exhibited the whole stalk at the 1917 Great Roanoke Fair, where it attracted a great deal of attention. I Naturally called them "Pomatoes," or I could have called them "Topatoes" as well.

The November 29th, 1919, edition of *The Rural New Yorker* has the following to say about these "compound plants":

Tomato Grafted on Potato

"At the New York State School of Agriculture at Morrisville the gardener in the horticultural department has grafted a tomato on a potato, and succeeded in ripening fruit. The potatoes were sprouted in the spring and the top of a tomato seedling was cut diagonally to fit on the potato stem, which had been cut in the same way. The double plant was grown in a pot. The fruit did not seem to be in any way affected by the

change in blood. When cut and served it could not be told from true fruit. This experiment is practical in that there may be a chance to get potato tubers with tomato foliage, which would be resistant to blight and the Colorado potato beetle. Certain gardeners in New York City are working on this problem and through a series of experiments hope to bring it about.

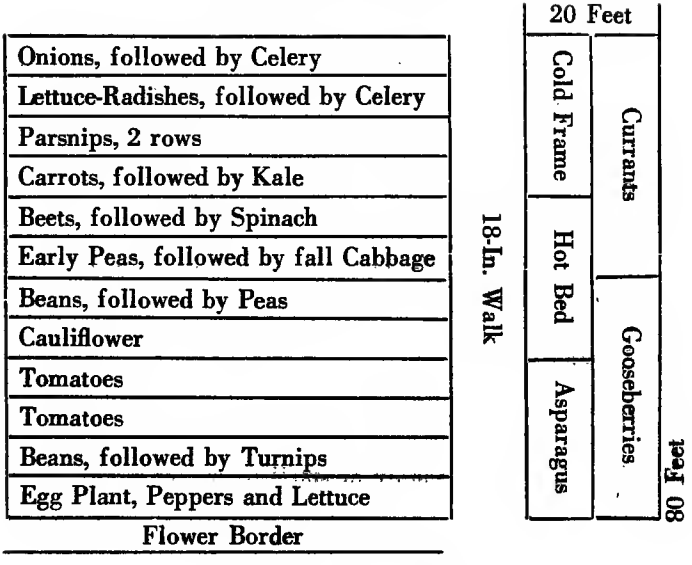
"THEODORE H. TOWNSEND.

"R. N.-Y.—These grafts of tomato on potato are not uncommon, and of course they have no commercial value. The work is often done at the agricultural college as interesting work for students. Some years ago we saw at a county fair one of these plants, with potatoes below ground and tomatoes above. It was a marvel to visitors, and many examined the plant to make sure the potatoes were not tied on. The faker who exhibited it offered seeds at 25 cents each. He claimed that such seeds would produce these 'compound' plants, and that seeds from the tomatoes would produce more plants. He said it was a wonderful new discovery which 'would change the entire history of agriculture.' He did a land agent business in those seeds. Of course it was a fraud. The plant was simply grafted and the seeds could not possibly produce potatoes. With modern knowledge it would be impossible to work such a barefaced fraud among intelligent people."

A HELPFUL GARDEN PLAN

The following garden design is intended to help garden crop rotation, and if followed closely can be worked out exactly as per plot.

The berry row will accommodate 15 currants, 15 gooseberries, 24 raspberries, and 100 strawberry plants. The hotbed and cold frame can be sown in parsley, lettuce, beans, carrots, etc., during the summer.


20 Feet
Cold Frame
Hot Bed
Asparagus
Currants
Gooseberries
80 Feet
Onions, followed by Celery
Lettuce-Radishes, followed by Celery
Parsnips, 2 rows
Carrots, followed by Kale
Beets, followed by Spinach
Early Peas, followed by fall Cabbage
Beans, followed by Peas
Cauliflower
Tomatoes
Tomatoes
Beans, followed by Turnips
Egg Plant, Peppers and Lettuce
18-In. Walk
Flower Border
Walk 2½ Feet Wide
Cucumbers, followed by Turnips
Early Potatoes, followed by fall Beans
Squash or Muskmelon
Beans, followed by late Cabbage
Beans, followed by late Cabbage
Sweet Corn
Sweet Corn
Salsify
Potatoes
Potatoes
Late Beets and Beans
Two rows Sweet Potatoes
18-In. Walk
Herbs and Rhubarb
Raspberries
Strawberries
50 Feet

The plot is 80 feet by 50 feet, with a 2½-foot walk through the center and an 18-inch walk lengthwise along the cold frame, hotbed and rhubarb bed. There are 24 rows in the garden, which will grow over twenty distinct varieties of vegetables, and still have a border for summer flowers, which should have a place in every garden.

A FEW WORDS PERTAINING TO GARDENING AND THEIR DEFINITIONS

ADHESIVE.....Sticky.

ANNUAL.....Coming every year.

APHIS.....A family of small plant lice.

BIENNIAL.....Lasting two years.

BLANCH.....To whiten, to grow white.

BROADCAST.....Scatter or sow abroad by the hand.

BULB.....An onion-like root.

CALYX.....The outer covering or cup of a flower.

CALLUS.....A hard or thickened place of the bark of a plant.

CAMBIUM.....Soft tissue from which new wood and bark originates.

COMPOUND.....To mix or combine.

CROWN.....The top of a plant root system. Head of a plant.

CULTIVATE.....To till; to prepare for crops.

DIBBLE.....A pointed tool used for setting plants.

DRILL.....To sow seed, etc., in rows.

FALLOW.....Land ploughed and not sown.

FARINACEOUS.....Ground grain: starch: pollen of plants.

FRONDS.....A leaf-like organ in which the functions of stem and leaf are combined, as in ferns.

FUNGICIDE.....A solution to repel fungus growth on plants.

GERMINATE.....Spring from a germ, to begin to grow.

GRAFT.....Inserting a scion or cutting into a tree or plant.

HELLEBORE.....A yellowish-brown powder having considerable insecticidial value.

HERBACEOUS.....Pertaining to herbs.

HYBRIDS.....An animal or plant produced from two different species.

HYDROMETER.....An instrument for measuring the density or specific gravity of liquids by flotation.

INSECTICIDE.....A solution to repel plants infected with insects.

LEGUME.....A pod as of the pea, bean, etc.

LOAM.....A soil of clay, sand, and animal and vegetable matter.

NODULE.....A rounded mass of irregular shape, as nodules on leguminous vines and plants.

NOZZLE.....A projecting vent of anything.

PERENNIAL.....A plant that lives more than two years.

PETAL.....A flower leaf.

POLLEN.....Fertilizing powder contained in anthers of flowers.

PROPAGATE.....To reproduce by generation, or, in plants, by seeds, cutting, etc.

RHIZOME.....An underground root-like stem, as in nymphæas.

ROOTLET.....A little root.

ROTATION.....A succession.

SLUG.....A kind of snail destructive to plants.

STAMEN.....The fertilizing organ of flowers.

SOD.....Earth filled with roots of grass.

TILL.....To cultivate.

TRELLIS.....A frame of lattice work for supporting plants.

TUBER.....A fleshy rounded stem or root.

WEEVIL.....A small beetle, very destructive to grain.

PART TWO

HOME DECORATION

I have been asked many times by parties who move in a newly built home, this question. What should I plant to beautify my home?

Everyone moving into a new unimproved home is always desirous of having a prettier place than their neighbors. This rivalry exists in every city and town in the country, and it is this, "trying to beat your neighbors" movement, that is responsible for the many beautiful homes in cities and towns all over the south as well as country homes.

"Wherever we find trees, shrubs, flowers, and lawns, well arranged and neatly kept up, be it in park, estate or less pretentious home grounds, we see reflected a spirit of refinement which makes for good citizenship."

One looks to the retention of a rich, healthy green foliage as late as possible by means of certain oaks, beeches, elms and golden and green conifers, while another employs the wonderful crimson and gold tints of the maples, gums, sumacs, etc., to construct the lovely pictures naturally peculiar to the season.

A portion of the lawn which can be seen as a picture through the frame made by the outline of a certain window should be so planted that it will always be sure to present a delightful scene during the varied changes of winter, when one is necessarily kept indoors.

Evergreens are desirable, in all ornamental planting as they retain their foliage through the winter, adding a tone of warmth and verdure, and imparting a charm to the landscape

that deciduous trees cannot supply. They should be judiciously planted on small as well as large grounds. On the latter the larger kind can arrive at full development and should be planted at distances sufficient to allow natural and symmetrical growth without crowding. The arborviteas and rhetinsporas, on account of their small size, are most suitable for small lots, but nearly all species and varieties suitable for this section look well on small grounds.

The results of planting evergreens depends largely upon the manner of planting them. One good way I have found to be most satisfactory and giving a pleasing effect on a lawn is to cluster five low growing evergreens in a circle in the center of which is set a larger sort like the Norway spruce (Picea Excelsia). A border of evergreens may be arranged around the house to hide the foundation.

Deciduous shrubbery such as wygelia, deutzia, syringa, altheas, etc., can be planted between each evergreen to add color and tint to the dark green foliage in summer.

Along fences, partly dead trees, old buildings, etc., nothing looks better than a few vines, among the most popular varieties being ampelopsis, quinquefolia, Virginia Creeper, ampelopsis veitchei, Boston Ivy, Japanese clematis, wisteria chinensis, trumpet vine, large flowering clematis, Jackmanni.

WHEN AND WHAT TO PLANT

In the fall about the time the oak leaves are turning from green to yellow, scarlet and brown is the best time to plan and think out your requirements for your yard and fruit garden. Many people neglect this very important duty of placing their orders with nurserymen, until late in the fall or spring, which results in many failures.

Your trees may only be whips or they may be well branched heads, but remember that they will grow larger and spread

out, so don't plant too close to other trees and vines. Remember that your small tree to-day will be a big tree to-morrow. Plant your deciduous trees such as maple, oaks, elms, etc., at least thirty feet apart, so that they will develop into nice specimens, and become ornamental as well as useful.

The advantages resulting from a careful planting of evergreens are many and no grounds seem complete without them. They retain their beauty through the summer's heat and winter's cold, and I recommend more evergreens be planted.

All nurserymen send evergreens balled and burlapped when so ordered, which insures their good growth and development. If your evergreens arrive before you are ready to plant them do not unpack them unless it should be impossible to plant under two weeks; then they should be carefully unpacked and with balls of earth wrapped in burlap, carefully transferred to a shallow trench and a little dirt thrown to the roots.

Many varieties of evergreens do well in this section of Virginia and many do not. In my fourteen years experience in this section of Virginia I have found the following varieties adapted to this climate:

American arborvitea, (thuya occidentalis).
American arborvitea, (thuya Occidentalis Compacta).
American arborvitea, (thuya occidentalis lutea).
Chinese arborvitea, (biota orientalis).
Chinese arborvitea, (biota aurea).
Rhetinspora plumosa.
Rhetinspora plumosa (aurea).
Colorado blue spruce.
Koster blue spruce.
Norway spruce.
Nordman's Fir.
Irish Juniper.
Boxwood.

Nearly all the Cedars (Cedurs) do well here, but on account of cedar rust on apples and other fruit, it is not advisable to plant this evergreen.

The American arborviteas can be purchased in globe or pyramidal form or in bushy shapes. They are strong growers.

ARRIVAL OF TREES

Shade and Fruit Trees

When trees arrive and you have your holes ready and weather is favorable, unpack and plant immediately, otherwies keep in box or bale, and if freezing weather, they should be left in package and protected from frost. If it is impossible to plant under 30 days they should be "healed in" a trench, either set up straight or leaning and plenty of dirt put to the roots. In dry weather they should be watered to keep roots from drying out.

Evergreens

Evergreens should arrive balled and burlapped, which means that they are dug with a ball of earth around the roots, and wrapped in a piece of burlap, which insures their growth and development. Unpack carefully, and see that the sacks do not loose the soil around the roots. Set up in upright position and if dry, water copiously at roots. A two foot evergreen properly balled will weigh from 80 to 125 lbs. If an evergreen is badly bent on unpacking, set up and drive a few stakes around it, and tie tree to stakes until straight. After a few hours the tree will be straight again.

Digging Holes

If you dig holes with a spade, be sure your holes are 3 times larger in circumference than the roots of your tree, and

twice as deep as you intend to plant the tree. Throw the top soil to one side and the sub soil on another pile. If you are not ready to set your trees for several days, or weeks, fill holes up again using a good compost, such as leaf mold, bone meal, leaves or grass clippings, etc. Mix thoroughly and fill up holes. Do not use the pile of top soil until you set your tree, then apply to roots at bottom of hole. After redigging the holes be sure to loosen up bottom of holes with a bar to a depth of from 4 to 8 inches.

Digging Holes With Dynamite

A third of a stick of thirty per cent dynamite is sufficient for blasting a hole for a young tree.

Dynamite is regarded as especially desirable only in soils underlaid with an impervious hardpan or those in which their compactness makes digging slow and difficut. The dynamite should be used only when the ground is dry. When the soil is filled with water the explosion of the dynamite forms a jug-shaped cavity about the size of a barrel, in which soil is loose.

When the tree is planted the settling of the loose soil allows the trees to drop much deeper than they should be set.

Dynamite loosens the soil, making hundreds of fissures and crevasses in the hard-pan, which brings up the grasses, and allows water to gather in the cavity so that the little rootlets of your tree can slowly feel their way to the basin and get a "drink" in dry weather. Dynamite for orchard and garden see page 63.

SETTING TREES

Do not set or plant trees when the ground is wet. Wait until ground is in "order," as you would when planting corn. Set tree in hole straight. Firm the dirt around the roots with

top soil using good compost well mixed with the soil. Set trees about an inch deeper than they were in the nursery. Do not mound up around tree, but rather leave a circular depression about 18 inches from tree to catch water to feed the roots. Do not "tamp" or firm the soil on top too heavy, but only at the roots. If soil is too heavily firmed on top the water cannot soak in. Evergreens and evergreen shrubs, such as Rhododendrons, Azalea, Mahonia, Hollits, etc., should not have any stable manure applied when setting, but rather leaf mold, grass clippings or decayed straw, etc. Trees that are set in yards or where there is turf, the turf should be thrown in the bottom of hole.

Trees that are balled and burlapped, as evergreens, the burlapping should be loosened only after tree is set in the hole, care being taken that the ball of earth is not separated from the root system. After burlap is unfastened from the ball, push the burlap down to the bottom of the hole and under the plant. If the ball of earth around the tree is firm enough to permit the sacking to be removed without interfering with the ball, the sack can be removed entirely.

After holes are about half filled up with soil, pour a bucket of water to each hole, allowing a few minutes to settle and then apply the dry dirt on top. This will prevent the earth from baking or crusting on top or surface around tree.

CULTIVATING AND MULCHING TREES

ALL trees must be thoroughly cultivated to insure good growth, the full value which is not generally appreciated.

One of the best ways of improving the condition of the soil around trees is to mulch them thoroughly with a good layer of leaves, straw or decayed vegetable matter in the fall and allow it to remain all winter and working it into the soil in the spring.

Keeping the soil around the trees free from weed and grass is very important. Shallow cultivation with a garden hoe in dry weather will not only help to keep weeds down, but also conserve moisture.

WATERING TREES

Trees should not be watered during the hot part of the day, but rather late in the evening or at night. A few buckets of water applied on the surface in dry weather will do little or no good, but on the other hand if the soil around the base of the tree is thoroughly soaked for a space of from 3 to 6 feet around the tree, every 5 or 6 days, trees will not suffer from drought.

Pieces of 4 inch drain tiling, or 2 inch iron pipe from 8 to 18 inches in length set on the upper side of a tree at an angle of 45 degrees set downwards and leaning from the tree, makes watering very simple. In dry times simply pour or allow the hose to run into pipes.

If pipes stop up at bottom a 3 foot iron bar is used to unstop the drain tubes. This method prevents soil from hardening and yet supplies water to the roots.

TREE GUARDS

There are many guards on the market for protecting trees. These guards are all good, but rather expensive, if you have a lot of trees.

For your yard trees such as Maples, Elms, Lindens, Plane, Oaks, etc., that require a guard to keep them from swaying to and fro with the wind there is nothing better than a good stake. Stake should be driven in the ground about 8 inches from tree, the tree should be fastened to the stake by heavy piece burlap, or a piece of rubber garden hose. If a guard is desired to

protect tree from horse bites or other injury, another stake can be driven into ground, and a piece of poultry wire of 1 inch mesh can be fastened around stakes.

SHADE TREE PRUNING

Three things are absolutely necessary to properly prune a shade tree, first, a good pruning saw; second, paint and brush; third, the most important of all, good sound judgment.

"Have you ever noticed the dead stubs on your shade trees? This is the direct result of last year's improper pruning. Never cut a limb off several feet or even inches above a bad spur or fork, the sun will make a crack, the rain will settle in it and next year the stub will die down to the union or fork. Suppose you then cut off the stub down to the live wood, you will find that it has decayed the limb and unless you dig out the decayed wood, and till the cavity with cement, you have a hollow tree that may blow down at any time.

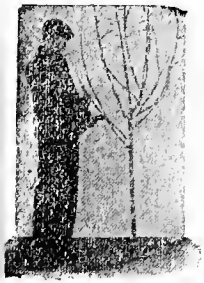
"In amputating large limbs always saw under the limb first, to keep from splitting; saw close to the trunk, remove all slivers and paint around the wound with a good tree paint. Never leave a stub or protruding limb; they give an unsightly appearance to the trunk, that rarely heals over. Always make a slanting cut. Horizontal cuts are difficult to protect against decay, as water is likely to settle on the surface.

Occasionally there is necessity of thinning out crown branches for the sake of giving better proportion to the crown and for some other purposes. Before pruning to relieve the encroachment of one tree on another the future and permanent value of the trees concerned should be most carefully considered. Not infrequently the natural beauty of a long lived tree has been destroyed by senseless cutting, in order to preserve intact some worthless short lived tree. Short lived and inferior trees such as the Carolina poplar, silver maples, etc.,

should always be sacrificed to preserve in good form such long-lived trees as the oaks, sugar maples, beeches, lindens, etc.

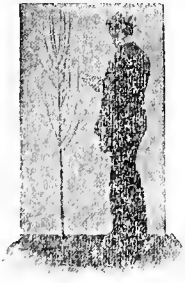
Pruning the Grape Vines

Any day during the winter is a good time to prune your grape vines, just so the wood is not frozen. Really the best time to prune the vines is after the sap has gone down and the wood has ripened in the fall. The grape vine bears its fruit in shoots or spurs of the present year, produced from eyes on the previous year's wood, so it is necessary to keep up a supply of young wood in order to have fruit. Remember the habit of the vine is to make wood, to climb as high as possible and to have its greatest vigor at its extremities, hence the grapes get too much shade, get choked and produce an inferior quality of fruit. Cut back to two buds.



ewly set 2-year Apple ready to be pruned

Same Apple tree pruned



Newly set Peach ready to be pruned

Same Peach pruned Prune 1-yr. Apple same way

Stone Fruits

In pruning stone fruits, such as cherries, plums, peaches, etc., it should be borne in mind that if the pruning is too severe the sap does not get sufficient vent. It then accumulates in masses and bursts the bark. Leave enough active buds to absorb the sap.

Pruning Apple Trees, Pears, Etc.

In pruning apple, pear, quince, and other fruits the following three articles should be observed closely.

I. Why bearing apple trees should be pruned. To produce larger and better fruit; to promote vigor; to regulate the amount of sunlight and air that penetrate to the center of the tree; to facilitate tillage operations and to aid in thinning, spraying and picking the fruit.

II. How to prune bearing apple trees. Light annual pruning should be practiced. Prune to some ideal that you have in mind. Remove dead and diseased wood. Shorten leaders if they are growing too high or are long and slender without sufficient lateral growth. Shorten or remove limbs that drag on the ground. Cut out branches which grow from the outer limbs toward the center of the tree. In no case should limbs grow across each other. Train water sprouts to fill in open spaces. Cut them back so they produce lateral growth. When water sprouts are intended to replace fruit-bearing wood that has been removed from the tree they should be cut back annually to not more than three buds to each sprout. All space in the tree should be filled with strong wood, but two branches should not be left for the same space. Remove all sprouts from the base of the tree.

III. Precaution. Do not over-prune a tree that has been neglected for a number of years. Too drastic pruning may destroy the fruiting habit of the tree. Instead of heavy pruning, take two or three years to bring the trees into the proper shape. A weak tree will withstand heavier pruning without interfering with bearing than a vigorous one. Do not strip small limbs and fruit spurs from the lower parts of the main branches. Paint all wounds one inch or over in diameter with thick white lead paint.

Pruning Deciduous Shrubs

The best time to prune blooming hardy shrubs, is soon after their blooming period has passed.

Shrubs which bloom in the spring develop their flowers from buds formed during the previous summer. By pruning immediately after the blooms have dropped, the shoots produced will have the balance of the season to develop new shoots, whereon will bring next year's blossoms.

Prune shrubs vigorously, but always allow enough wood to produce good shoots for next season. Cut close to spurs, or buds.

Pruning Raspberry and Blackberry

Remove all old canes and unnecessary shoots from the crown or base of each plant and from between the rows.

Old canes should be cut off as soon as the fruiting time is passed.

The tops of the canes are cut back to reach the height favored by the grower.

TRANSPLANTING TREES

Large shade or fruit trees should be transplanted only when they are dormant.

If it is desired to transplant a tree that is over 4 inches in diameter, care should be exercised to injure as few roots as possible. If possible, cut back the top of the tree to equalize the root system. The broken, bruised tree roots, so often twisted into holes, far too small for them, seldom put forth new growth, but more often rot back to the point where the root branches.

If the roots of the tree to be transplanted are cut off smoothly with a sharp knife a new growth of rootlets start at

once and form a continuous band of rootlets around the end of each root so prepared. If these rootlets are well surrounded with good soil and supplied with moisture they are soon at work supplying food and moisture to trunk, branch, twig, and leaf.

Be sure not to neglect the most important part of transplanting, securely staking and guying the tree to heavy stakes or posts, so that it can not be shaken by the wind until its roots become strong enough to anchor themselves fast and securely.

NUT TREES

The constant and growing demand for nuts, and the immense quantities of them yearly imported to meet it have given a great impetus to the planting of nut-bearing trees. No other food has shown such an astounding record for increase of demand, year after year. So palatable and wholesome are the nut kernals that they should become a staple article of food here as in Europe. The returns from established nut-bearing orchards, as well as numerous experiments, show plainly how successful nut culture may be made in America. Most farms contain land that would pay better in nut-bearing trees than in anything else, the nuts in many cases paying better than farm crops.

Nursery production of these hardy, acclimated varieties of nut trees is attended by more or less difficulty and greater cost, but they relieve the planter of all anxiety. He may leave them out in the rain and frost, almost forgetting them, in fact, and there he will find them in a few years, each tree yielding nuts that will bring a larger dividend than a thousand dollars in the bank.

For the home-garden the nut tree supplies shade and food, and adds value to the property as few other trees do. It seldom pays to plant seedlings.

BUTTERNUTS

This tree is valued for its tropical appearance and its beautiful wood, as well as for its nuts. Produces large, handsome, elongated nuts with a rich sweet, oily kernel of marked, though most delicate flavor. Nuts very nutritious. Cultivation increases the size of the nuts, and the tree is a rapid grower yielding large crops in a few years. The increasing market for this valuable nut makes it a good investment.

Almonds

HARD-SHELL. The tree is very showy when in bloom. The kernels of the nut are large, plump, and sweet; hardy and very easy to grow. The shell cracks when the fruit ripens.

SOFT, OR PAPER-SHELL. The almond of commerce. Nuts are highly flavored and of better quality than the Hard-Shell. Not hardy north of Philadelphia. The kernels are most sweet and tender. A profitable variety to plant.

Walnuts

JAPAN. Good producer; nuts sweet and somewhat resembling a butter nut. Tree bears young and regularly.

PERSIAN. English Walnut. Tree of lofty growth and produces large, thin-shelled, delicious nuts.

AMERICAN. Valuable for producing a superior wood and the large oily nuts are produced in heavy crops. Trees grow fast. Nuts sell at best prices.

Filberts

ENGLISH. Of easiest culture, growing 6 to 8 feet high, entirely hardy, and one of the most profitable and satisfactory nuts to grow, succeeding on almost all soils, bearing early and

abundantly; nuts nearly round, rich and of excellent flavor, admired for the dessert.

KENTISH COB. One of the best; large size, oblong, of excellent quality.

Pecans

Each year's progress in the growing of budded or grafted Pecans throughout the cotton belt section of the South is proving more conclusively that Pecan growing is sure and profitable. As the industry progresses, new lights and new facts are being brought out both as to varieties, yield, methods of planting, and cultivation.

From 2 to 4 pounds per tree, 6 years from planting, with a gradual average increase up to 25 to 30 pounds in the tenth year is a fair average of the production of the well-tended groves throughout the South. Many trees are yielding far in excess of this, but believe the foregoing to be a fair average.

Pecan growing as an industry has become thoroughly established. The great future of the industry, as we see it, lies in the farmer and fruit grower who plants from a few trees around his home, farm buildings, along his avenues and roadsides, up to five or ten acres. Trees planted under these conditions will be given good care and will unquestionably yield the owner more liberal revenue in the course of eight or ten years than any other purpose to which he can put the ground and as we are recommending the planting 50 to 60 feet apart, there is opportunity to use the space between the trees for farm crops until the Pecans are in profitable bearing.

Some of the best varieties to plant in this section are as follows:

ALLEY—Medium size, good quality.

DELMAS—A large nut of good quality.

MANTURA—A large, well-filled nut, very thin, good flavor. Originated in Surry Co., Va.

SCHLEY—One of the best. Thin shell.

VAN DEMAN—Large nuts. Good bearer.

STREET TREES

I can't possibly close this chapter without saying a few words on this important subject. It is surprising to know of the amount of bad taste used in selecting trees for our city streets, as well as on country roads. First, trees on city streets and avenues, should be set in straight rows, parallel with the street and uniformally spaced. Second, trees should be of sufficient caliper to give an almost immediate effect. Third, good judgment should be used in selecting the variety best suited for street tree planting.

The following varieties are best adapted to our streets and avenues of our cities of this section:

Norway Maple, (acer plantanoides).

Pin Oak, (Quercus palustris).

Schwedleri Maple.

American Elm, (Ulmus Americana).

Oriental Plane, (Platanus sycamore).

European Linden, (Tillia Am.).

THE NORWAY MAPLES I consider the best for street planting. First, they are not so much effected by gasses, dust, etc.; second, they are immune to the ravages of San Jose Scale, which is doing so much damage in the south; third, they make beautiful round or dome shaped heads, attaining a height of 25 to 30 feet; fourth, they have a very rich dark green foliage, which clings to the branches in the fall, sometimes when all other trees are bare.

THE PIN OAK or Swamp Oak, is considered by many City Foresters and authorities as the best tree for street planting.

Its growth is slower than the maples. The toothed leaves, and globular acorns, together with its almost perfect pyramidal shape make it a very desirable tree for streets and avenues, as well as country roads and boulevards.

THE SCHWEDLERI MAPLE, (Acer Schwedleri) is like the Norway Maple, except that it changes color several times during the growing season. The leaves are sometime variegated with brown and purple, and again dark green or red, turning a bright yellow in the fall.

THE AMERICAN ELM—a good, well balanced street tree, stately in appearance. The Elm Flea Beetle, which is very destructive on Elms, is the American Elm's worst enemy, and unless properly sprayed each year, the Elms will not thrive.

THE ORIENTAL PLANE is also a good tree for streets. It is recognized by many as one of the best fast growing trees on the list. It has, however, one bad habit, that of the branches growing downward, which is objectionable to passersby where set close to sidewalks. The Plane bears pruning nicely, and if lower limbs are kept pruned off, it becomes a very desirable tree, and presents a very ornamental appearance on broad avenues.

European Linden

EUROPEAN LINDEN. The American Linden or Basswood. This stately tree is very much in favor for planting on broad parking spaces where it can develop into a stately monarch. It attains a height of from 70 to 90 feet. The leaves are heart-shaped and green on both sides.

Street trees should be planted in straight rows. If a city block is being set to maples the entire street or avenue should be set with maples of the same variety. They should be cared for annually and only by experts.

PART THREE

ROOTING PRIVET

Hedge clippings may easily be rooted if cut in 12 inch lengths in the spring.

In rooting cuttings from California Privet and Amor River Privet, cut the pieces in about 12 inch lengths, stripping the bottom leaves off the stem and sticking them in a trench about an inch apart. The cuttings should be placed in the soil to third bud and set in a leaning fashion. The soil should be firmed around the cuttings and a trench a few inches deep cut on each side of row containing cuttings to gather water. In dry times the soil should be watered, and at no time should the soil become very dry. Keep weeds from propagating row, and cultivate lightly.

By Autumn you can transplant the rooted cuttings to a permanent location.

Boxwood and Euonymous can be propagated the same way.

Government Whitewash

A whitewash that is almost as serviceable and cheaper than paint for wood, brick or stone, has been used by the United States government for whitewashing lighthouses. It also has been used to embellish the east end of the White House. It is made as follows:

Slake half a bushel of lime with boiling water, cover during the process to keep in steam. Strain the liquid through a fine sieve or strainer, and add to it a peck of salt, previously dis-

solved in warm water, three pounds of ground rice boiled to a thin paste and stirred in while hot, half a pound of Spanish whiting and one pound of clear glue, previously dissolved by soaking in cold water and then hanging in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well, and let stand a few days, covered from dirt. It should be applied hot, for which purpose it should be kept in a kettle or portable furnace. By the addition of coloring matter, various shades of color can be obtained. Yellow ochre added to the whitewash gives a cream color; lampblack or ivory black produces a pearl or lead tint; four pounds of umber to one pound of Indian red and one pound of lampblack, makes fawn; and four pounds of umber and two pounds of lampblack produces common stone color.

Grafting Wax

RESIN—2 lbs.

BEESWAX—1 lb.

TALLOW—(rendered) ½ lb.

Melt all ingredients together, but don't let boil. Pour the hot liquid into a pail of cold water. With greased hands flatten the mass beneath the water. Allow it to get cold and tough but not brittle. Remove from the water and pull until a fine grain is produced. An experienced tree-grafter in Craig Co., Va., has used this formula for years, and claims it the best grafting wax made.

Tree Paint

WHITE LEAD—1 lb.

LINSEED OIL—(enough to make a thick paint).

LAMPBLACK—1 oz.

Mix to a consistency of paint only thicker. Apply to wounds with a brush, rubbing well into the grain.

Sterilizing Cavities of Trees

Farmer's Bulletin number 1178, issued by United States Department of Agriculture, Washington, D. C., quotes the following on sterilizing cavities:

After decayed and diseased matter has been completely excavated and the edges of the sapwood and bark adjoining the cambium shellacked, the remainder of the cavity also must be sterilized. As already stated, creosote appears to be one of the best generally known preparations to use. Every exposed part of the wood and bark must be sterilized, and over this a heavy coating of tar, hot asphalt, or some other suitable waterproof covering applied.

This completes all the essential operations in repairing and treating old decayed spots or freshly made injuries. Filling a cavity is of much less importance. Oftentimes a cavity is safer and better if left unfilled; it certainly is if cement is used and the work is done carelessly or ignorantly.

Open Cavities

A tree cavity which has been excavated, sterilized and waterproofed in the manner just described is in condition to be left, with occasional inspection, in comparative safety for years. Cavities treated in this way probably are safer than most tinned or cemented cavities of the ordinary sort, and, furthermore, they have the advantage of permitting easy inspection from time to time. The new growth of wood and bark along the margins will gradually form an inwardly rolled edge if there is no filling, sheet metal, or artificial ledge to force it across the cavity.

The cavity must be watched from year to year, and any tendency of the waterproof coating to crack, peel, or blister should immediately be counteracted by repainting. This is an

important point, which must not be neglected. It is better and safer to repaint every year (or at least two years) until healed over, without waiting for defects to appear.

ERADICATING WILD ONIONS FROM LAWN, FIELD AND GARDEN

Wild onion or field garlic is an abominable weed, which spreads by means of aerial bublets and secondary bulbs under ground. It is a serious pest in grain fields, the aerial bulblets being about the same size and weight as a grain of wheat, so that it is impossible to clean them out at harvest time. There is heavy loss from this weed in the wheat fields of Virginia, Maryland and Tennessee, and rye growers in the Eastern States are also affected by it. The garlic "kernels" not only taint the flour, but also cause a sticky coating on the rollers, and in stone-grinding, taint the buhr-stones themselves. In a garden plot hand-pulling at flowering time may be practiced, but the ground must be soft and care taken to leave no "cloves" to start a new plant. The most effective method is to squirt a few drops of crude carbolic acid on each tuft, using a machine oil can to apply it. This is the best way to eradicate the plant in lawns. Late fall plowing, that will bring the bulbs to the surface, followed by early spring cultivation and a hoed crop, is very helpful, but one cannot exterminate the weed in a single season. In infected pastures, salting the clumps will induce sheep to eat them off, but either milk or meat is tainted by garlic. If carbolic acid is used in pastures, stock must be kept from the fields until rain has washed the poison into the soil.

I have eradicated onions successfully on lawn by using a "spud" made out of a piece of buggy spring about 12 inches long and, having the blacksmith split the end and making a fork, sharpening both prongs. Dig out the clumps and put in

a wheel-barrow or sack, saturate with kerosene oil and burn. Be sure the entire clump is removed. The tiny bulblets, if not burned, will become separated from the clump and blow from lawn to garden and garden to lawn as soon as they are dry.

Dandelion, dock, plantain and other weeds should be taken out the same way.

DYNAMITING FOR ORCHARD AND GARDEN

Every farmer in the country appreciates the value of labor-saving devices, because it reduces the cost of production. Not so many years ago the farm was the last place to find stored away in some seldom-used out-building, a case of dynamite, fuse and caps. This is now found on nearly every up-to-date farm, especially fruit farms, nor do we find it only on the farm, but we also see it used along our streets, in front and back yards with perfect safety.

Dynamite is a high explosive. It is dangerous, when one does not observe the twenty-five or more "don'ts" that come with each case you buy.

If you have a fairly old tree, that does not seem to be growing, yet it is free from scale and borers, the chances are that the roots have absorbed all the moisture they can get, and are cramped and twisted on top of the hard-pan.

If you will drill a hole some six or eight feet from the tree and driven downwards, towards the tree, on a dip of about 45 degrees and use a stick of agricultural dynamite (not 60 per cent) you will notice a marked improvement on your tree's growth this coming season. Be sure your shot is directly under the tree, and should be at least four feet deep below the roots.

Try about six sticks cut in half or twelve shots in your garden this spring, where you are going to raise potatoes, put them twelve feet apart and note the difference in your crop.

DON'TS ABOUT DYNAMITE

Don't smoke while using dynamite caps. Fuse burns from 2 to 3 feet per minute, so don't worry, or get in a hurry. If you've primed your cartridge right, used good fuse, it will go off all right.

Don't use a bar or anything that has metal on it to tamp your holes. Use a wooden tamping stick.

Don't cut the fuse short to save time. It is dangerous economy.

Don't investigate the dynamite cap or detonater with a nail or ship instrument.

Observe these don'ts and you won't take a premature aerial ascension.

Planting trees with dynamite see page 71.

MISS VIRGINIA PIPPIN

Says Mr. BALDWIN of New York,
I've got the greatest apple known.
RAMBO says BLACK BEN'S a better sort,
Brings more money, than all the BALDWINS grown.

Of course when it comes to WEALTHY,
Or Mrs. GOLDEN with her GRIMES,
It makes KING feel so healthy,
That we eat SUDLEY and BLENHEINS.

Now in Pennsylvania, where the YORKS are grown,
The IMPERIAL as everybody knows,
Is as DELICIOUS as the old GLADSTONE,
And the FALLOWATER near the TULLEPEHAUKEN flows.

Now comes JOHNATHAN of Missouri state,
Who is PROFESSOR in that clime.
And they ship them by the crate
As well as GRAVENSTEIN.

In Virginia there's a PIPPIN of ALBEMARLE,
Says the MAIDEN'S BLUSH, I love thee much.
SEEK-NO-FURTHER, and let's not quarrel,
STAY-MAN, for there's NON-SUCH,
I'm a real VIRGINIA LADY,
A POUND SWEET and BEAUTY maybe.
So you WINESAP watch your wig,
Or I'll bend you with my M. B. TWIG.

PART FOUR

*FRUITS FOR THE SOUTH

So little attention is given to the proper planting and cultivation of fruit trees that to a beginner, or even to those of some experience, the business often seems discouraging. There is positively no excuse for all the failures in fruit-growing, except pure neglect, a failure to understand the requirements of fruit trees, whether in the home-garden or in the orchard. Thousands of orchards go to waste annually by neglect. Every person owning a home can have a healthy, thrifty orchard, if he will follow the instructions given herewith. We all know that fine fruit is produced. You can produce it if you will give the matter a small part of your time and attention.

It is well known that fruit-growing is usually much more profitable, as well as much easier, than general farming; returns of $500 or more per acre from crops of apples or peaches are not at all exceptional. All over the South there is an increasing interest in fruit-growing, brought about by the high prices that first-class fruit now command. The Government pomologist tells us that there will always be a demand for this class of fruit, and from the large cities comes a constant call for "more." It has been proved that fruit-growing is just as practicable in the South as elsewhere, and that this section has a number of notable advantages that will carry it to the top of commercial fruit-growing regions of the country.

In order that you may clearly understand that the production of apples, peaches, pears, plums, cherries, and many other

*Published by permission of the J. Van. Lindley Nursery Co., Pomona, N. C. Fruits for the South is so well written that I consider it of high value to this book.—The Author.

fruits in the South long ago passed the experimental stage, we need only refer to one or two incidents. In November, 1910, there was held at Council Bluffs, Iowa, one of the most important horticultural exhibits ever given. Entries of fruit were made from every section of the country, including the western states with strong reputations for high-class fruit. But the southern states were there, too, with a liberal display of fruits and nuts, and when prizes were awarded, the southern states represented received ten out of a total of twenty special prizes in exhibits open to all. The leading premium was a Silver Trophy, awarded to North Carolina fruits as sweepstakes on the best display of fruit in the United States.

In addition, there were a number of "plate displays" of such fruits as apples, peaches, and grapes, on which the southern states took a number of prizes; North Carolina alone took six trophy cups and several ribbon prizes. This incident, and the fact that many commercial orchards are already in profitable bearing throughout the South, particularly those planted to apples, pears, and peaches, *prove* the adaptability of that section to fruit-culture on a large and profitable scale

Prompt railroad facilities bring all the large cities of the East—Washington, Baltimore, Pittsburgh, Philadelphia, New York, and Boston—within easy reach of the southern fruit-grower, most of them comparatively only a few hours distant. This means that his fruit will be *better* than that grown farther away, because it can ripen on the tree instead of having to be gathered half-green; it means, too, that such perishable fruits as peaches, grapes, cherries, and strawberries, which bring high prices and are very profitable, can be grown in the South and easily shipped so as to arrive at northern markets in good condition and at much less expense.

Southern fruitmen can score a distinct advantage over the growers of other sections by producing fruits which generally

do not succeed north of the Mason and Dixon Line. Persimmons, figs, nectarines, etc., pecans, and Japanese walnuts, bring high prices; at the same time, they are easily grown in the South, where great quantities are now being raised. Every home should raise these fruits and nuts for family use, and to sell.

FIVE IMPORTANT REASONS WHY WE SHOULD PLANT FRUIT TREES

FIRST.—The increase in the value of the farm. A well-kept orchard will make your place more valuable in many ways. Who would not pay a great deal more for a farm with a large, healthy orchard than for one exactly like it, without the orchard?

SECOND.—It pays to have fruit for the sake of our health. Many troublesome diseases are unknown to the free users of a largely vegetable diet. Settlers in a new country improve in health as their orchards begin to bear freely.

THIRD.—A healthy growth of trees and evergreens to the windward of a home will break the cold winds in winter and afford shade and pleasure in summer.

FOURTH.—It pays from the profits secured by selling your surplus to the different towns in your vicinity. Inhabitants of towns and villages become ready buyers of fancy fruit and pay good prices for it. Often when you live within marketing distance of a good town you can make more money from your orchard than from any other crop you can grow. Some farmers realize from $300 to $500 from just a few acres planted in strawberries, peaches, pears, plums, apples, etc. Many a farmer with four or five acres in apples, peaches, pears, and plums realizes more profit from it in money, besides the pleasure of having the fruit, than from the balance of the farm. It is easy to have fruit every month in the year. Commence in the spring

with currants and berries of various sorts—just a few of each. Then come the different varieties of apples, peaches, pears, plums, and other fruits, ripening in succession from May until frost. In the meantime we can, by planting nice preserving and canning fruit—such as the Kieffer pear and other things—preserve and can fruit enough to last through the winter, besides the apples which can be kept late in the fall and sometimes all winter. Then plant a few nut trees—pecans, walnuts, etc. They are enormous bearers and their fruits find ready sale.

FIFTH.—Last, but not least, it will help to keep the farmer's son at home by making home attractive. There are but few boys that do not like fruit, and by having this, and by planting shade and ornamental trees, vines, roses, etc., the home is given a pleasant aspect that will go a long way toward keeping the children satisfied. Give them a few trees of their own, for pleasure and profit, and you will be well repaid.

WHAT FRUITS SHALL WE PLANT?

For a family orchard we mention the following things which you might plant with profit:

17 Apples.
17 Peaches.
8 Plums.
6 Pears.
2 Cherries, or Nuts.
200 Strawberries.
300 Asparagus.
24 Raspberries.
12 Blackberries or Dewberries.
24 Grapes.
22 Currants or Gooseberries.

SELECTING A PLACE FOR AN ORCHARD

It is a wrong idea to plant fruit trees on poor land if you expect good fruit. If you plant on poor land, you must fertilize or manure with something to feed the trees, as you do corn, cotton, or any other crop. Trees must have good soil and at-

tention. An orchard deserves the best land you have. Whenever possible, an orchard should have a northern or northwestern exposure and be planted on well-elevated places.

PLANT YOUNG, THRIFTY TREES FOR BEST RESULTS

One of the biggest mistakes with some is that they want large, overgrown trees to plant. A tree one or two years old, that has been well grown by a reliable nurseryman, will make a better tree in the long run, fruiting in a fewer number of years, making a healthier tree, thereby longer lived, than a tree that is larger and older when bought and transplanted. Get them with good roots.

When planting, put down in a book just where each variety can be found, state the row it is in and number from a given end.

HOW TO CARE FOR TREES BEFORE PLANTING

If you cannot plant immediately, "heel" them in the ground in the garden or some convenient place until you are ready to plant. Heeling-in might be termed temporary planting, to preserve the roots until you are ready to plant. One of the simplest ways to heel-in trees is to dig a trench about 2 feet wide and about 1½ feet deep, open the bunch of trees and spread them thinly in the trench, then fill in with loose earth to about 6 inches above the point they grew in the nursery. Always trample the soil with the feet so that it will be in close contact with every root. The same principle is to be observed in heeling-in small plants. Then when you are ready to plant, the trees will be in good condition. When they are properly heeled-in, they will keep in good condition for several weeks.

In planting an orchard, let the ground be made mellow by repeated plowing. For a tree of moderate size, the hole should

be dug 3 feet in diameter and 12 to 20 inches deep. Blasting the holes with dynamite, if convenient, loosens the soil and is very beneficial to the trees. Turn over the soil several times. In every instance the hole must be large enough to admit all the roots easily without bending, and the roots should go in the hole as they grew in the nursery. They should be straight and not cramped and in masses. Shorten and pare smoothly with a knife any bruised or broken roots.

Hold the tree upright while another person, making the soil fine, gradually distributes it among the roots. Shake the tree gently while the filling is going on. The main secret lies in carefully filling in the earth so that every root, and even the smallest fiber, may meet the soil; and to secure this, spread out the small roots and fill in the earth around every one.

When the hole is two-thirds full, pour in a pail or two of water. This will settle the soil and fill up vacancies that remain. Wait until the water has been absorbed by the soil and then fill up the hole; do not trample, but fill loosely with fine soil. The moist earth, being covered by the loose surface soil, will retain its humidity for a long time. Indeed, we rarely ever find it necessary to water again after planting in this way, and a little muck or litter placed around the tree upon the newly moved soil will render it quite unnecessary. Frequent surface watering is highly injurious, as it causes the top of the soil to bake and prevent the access of air, which in a certain degree is absolutely necessary. Avoid the prevalent error of planting trees too deep. They should not be planted more than 1 inch deeper than they stood before. (See illustrations.)

Set too high

Set too low

Roots badly bunched

Set properly

If your soil is positively bad, remove it from the hole and substitute a cartload or two of good garden mold. Do not forget that trees must have food. Three times the common growth may be realized by preparing holes 6 feet in diameter and twice the usual depth, enriching and improving the soil by the plentiful addition of good compost, well rotted and thoroughly mixed with the soil. In most cases it will be best to plant in good soil and use the manure as a mulch. Young trees cannot be expected to thrive well in sod land. When a young orchard must be kept in grass, a circle should be kept dug around each tree. But cultivation of the land will cause the trees to advance more rapidly in five years than they will in ten when it is allowed to remain in grass.

Few kinds of trees or plants—none in the fruit class—succeed in wet land. A soil too wet for any crop is too wet for trees. This may be known if water stands in the furrows for a week or more after the frost has left the earth or after a rain. If you wish to plant such land, drain it first. Some land is naturally underdrained; some is sufficiently undulating to let the surface-water flow off rapidly.

PRUNING AT TIME OF PLANTING

Most people desire a fine top from the day of planting. All of their attention is given to the top, consequently they have an unbalanced tree—top-heavy. They argue that to prune spoils the looks of the tree, and their trees are sure to be out of balance—more top than root, and more top than roots can support. First give your attention to the roots; secure a good foundation and you can then make the top what you please. In digging trees, especially fruit trees, it is impossible to preserve all the roots; consequently we have an unbalanced tree, and the way to overcome this is to do away with some of the

top. In evergreens, shrubs, etc., most of the roots are dug with the tree; consequently little pruning is required. Trees having few roots should be cut back more than those having many. Roses should be cut back to within a few inches of the ground.

APPLES

Apples are the one all-purpose fruit for every locality, and are bound to remain the standard fruit for the South, just as for other sections. Every home should have *some* Apple trees —at least a dozen; if there is room to plant more, they should be set out, by all means. There is nearly always a good demand at market, and a few trees eight to ten years old will bear enough fruit to bring in considerable money.

In selecting kinds for the home orchard, there should be a few early-bearing sorts for summer sauces and pies, as well as for dessert purposes; there should also be some fall varieties, with a liberal number of late sorts to keep during winter. With a good selection and proper care of the fruit, fresh Apples may be had the greater part of the year, eight to ten months at least.

Apple trees will thrive almost anywhere; a mellow soil, well drained, is essential. Soil that will grow good crops of corn or cotton will generally do well.

In the following list the varieties are given in the order of their ripening, commencing with the earliest and continuing throughout the season. In several instances, two or more varieties ripen at the same time. We also divide our Apples into three groups—summer, fall, and winter varieties. Many of the fine winter varieties that succeed so well in the North and in the mountain sections of North Carolina and Virginia will not succeed in the lower lands and the great cotton-belt of the South.

There are, however, several varieties of fall and winter Apples which do succeed in the cotton-belt, which we feel safe

in recommending and feel that more of this list should be planted. This list will be found on page 76. Early and summer varieties succeed generally throughout the southern and border states, the cotton-belt, as well as in the Piedmont and mountain sections.

The trees represented in the following list are strictly reliable in every way—true to name, healthy, well developed. We take great pains in growing them to produce thoroughly *quality* stock; the appearance of the trees themselves proves that we succeed, and this is further evidenced by the large number of letters of commendation which we receive every year, indicating the great satisfaction felt by our customers in our trees and the crops they bear. A selection from our list will bring you trees that you can depend on. We have been growing Apple trees for many years, and our long experience and good reputation are behind every tree we send out.

Early and Summer Apples

Ripening time given below refers to central-western North Carolina. In Virginia, the season will be a week later; in eastern North Carolina, South Carolina, and Georgia, a week earlier; and about two weeks earlier in middle and southern Alabama and Mississippi. The summer varieties are arranged about in the order of their ripening; this will be very helpful when making your selection of trees.

MAY. Small, nearly round; pale yellow; pleasant subacid; prolific, hardy, and very popular on account of its earliness.

EARLY COLTON. One of the best early Apples. Medium to large; yellowish white, with a reddish blush next to the sun; flesh yellow, good.

EARLY HARVEST. Medium to large; pale yellow; rich, sprightly flavor. June.

YELLOW TRANSPARENT. Medium size; skin clear white at first, becoming pale yellow when mature; flesh white, tender,

juicy, subacid; quality good to very good; very prolific; dwarfish. June.

LIVLAND. Ripens with Yellow Transparent; of striking beauty. Yellow, overlaid with splashes of light red and pink; early and prolific bearer; quality very good.

RED JUNE. Medium to large, oblong, conical; dark red; flesh tender, mild, subacid; commences to ripen early in June and continues six weeks. Splendid eating Apple.

RED ASTRACHAN. Rather large, roundish oblate; covered almost entirely with deep red. A good cooking and market variety. Tree strong, hardy. June.

WILLIAMS' (Williams' Early Red.) This variety we believe to be one of the best early summer Apples for market or home use. Medium size; dark red; subacid.

ECKEL. The best summer sweet Apple and the most beautiful. Size large; color solid red; quality sweet and good. July to early August.

STAR. One of the best midsummer Apples; 10 to 12 inches in circumference; yellowish green with a faint blush next the sun; quality good; fine for cooking. August.

HAMES. Large, roundish; whitish, striped, splashed and mottled with light and dark red, sprinkled with yellowish and brown dots; flesh white, rather firm, juicy, brisk subacid; quality good. August.

SUMMER BANANA. Size medium; color yellow, covered with stripes and splashes of light red and pink; quality fine, with a decided banana flavor.

HORSE. Large, oblate conical; yellow, occasional blush next to sun; subacid and good. A very popular old variety for cooking, drying and cider. August.

TUCKER. A new sort called to our attention three summers ago. Begins to ripen in June and continues all through the summer. Quality very good, especially for cooking. Tree

hardy and a good bearer. Tucker is really the nicest everbearing Apple we have ever seen.

Autumn Apples

BONUM. Medium, roundish oblate; red, sprinkled with white on greenish yellow ground; rich, juicy, and of very fine quality. Early winter in western North Carolina. See back cover.

BUCKINGHAM. Very large, oblate conical; covered with red stripes and blotches on a greenish yellow ground. September and October.

DELICIOUS is a fall apple in the coastal section. See full description below.

GRIMES. Medium, oblong; rich yellow color; flesh yellow, rich, with a very delicate, fine flavor. Considered the highest in quality of the fall Apples. October to November.

VIRGINIA BEAUTY. Large, conical; red; flesh yellow, rich. Very good. Late fall. Well known for over fifty years; decidedly worthy.

Winter Apples

BEN DAVIS. Healthy, vigorous; an abundant bearer; fruit large, handsome, striped; flesh tender, juicy, subacid; fair quality.

BLACK TWIG. (Paragon; Arkansas Mammoth Black.) Large, roundish; dark mottled red; fine-grained, subacid. Tree strong and an abundant bearer. One of the best.

DELICIOUS. Considered by many to be the finest winter Apple in the world. Large; almost covered with dark red; truly delicious—sweet, aromatic, slightly acid; fine-grained and juicy. Prolific bearer and a fair keeper. Late fall along the coast.

JONATHAN. Medium size; nearly covered with brilliant stripes of clear red on a pale yellow ground; flesh white, very juicy, spicy, subacid, moderately rich. Fine keeper; productive.

LIMBERTWIG. Red. Succeeds well in Wilkes and adjoining counties, North Carolina, and in Patrick and adjoining counties, Virginia. Medium, roundish; dull red; good keeper.

REAGAN (Black Ben Davis.) Similar to Gano and Ben Davis, but superior to the latter in color. Good grower; annual bearer; fruit handsome and a good keeper.

ROME BEAUTY. Large, roundish, slightly conical; bright red on pale yellow ground; juicy, fine-grained; good quality. Early winter in western North Carolina.

ROXBURY (Boston Russet.) Large, roundish oblate; flesh yellow, slightly crisp, with a good subacid flavor. October to December.

ROYAL LIMBERTWIG. Very large; pale yellow, striped with red; rich, juicy; good. November to February.

SHOCKLEY. Medium; round; greenish yellow and red; quality good. December to April.

STAYMAN (Stayman Winesap.). Medium to large; yellow and red, with dots; tender, juicy, subacid; quality best; good keeper. One of the most popular Apples, and deservedly so.

TERRY (Terry Winter.) Ripens late and keeps well. Fruit medium; yellow and crimson; of fine quality. Should be more largely planted in the South.

WINESAP. Medium, roundish; red, on yellow; fine, crisp, highly flavored. A good old Apple that can't be beaten. Does well everywhere in this section.

WINTER BANANA. Golden yellow, shaded light red; very beautiful; quality fine. Very early bearer.

YATES. Small winter Apple; juicy and extra-fine flavor; prolific bearer. Keeps well through the winter. Succeeds all through the cotton-belt and the Piedmont sections.

YELLOW NEWTON (Albemarle Pippin.) Large, roundish; yellow; firm; subacid, rich.

YORK IMPERIAL (Johnson's Fine Winter.) Large, nearly round, often oblique; whitish, shaded with crimson; flesh yellowish, crisp, juicy, subacid. Does well almost everywhere. Midwinter.

A Good List Ripening in Succession, June to October

The following is a splendid list of early, midsummer and fall Apples, ripening in succession from June to October. There are many other good varieties not mentioned.

May, Early Colton, Early Harvest, Yellow Transparent, Livland, Red June, Red Astrachan, Eckel, Star, Summer Banana, Horse, Bonum, Buckingham, Grimes, Delicious (Winter Apple in the mountains.)

Winter Apples for Special Localities

We have planned the following list as an aid to those who may be in doubt about selecting the best varieties. Although the list refers to different sections of North Carolina, the same rule can be applied to other southern states. Where the same variety appears in more than one classification, it indicates that the variety will succeed in different locations. We shall be glad to help you make up your list if requested.

Eastern North Carolina

Shockley, Stayman, Terry, Winesap, Yates, York Imperial.

Middle North Carolina, or Piedmont

Mammoth Black Twig (Ark.), Roxbury Russet, Shockley, Stayman, Terry, Winesap, Yates, York Imperial.

Western North Carolina and the Mountains

Delicious, Grimes, Limbertwig, Mammoth Black Twig (Ark.), Rome Beauty, Royal Limbertwig, Stayman, Winesap, Winter Banana, York Imperial.

CRAB-APPLES

FLORENCE. Medium, oblong; striped red and yellow; very beautiful.

RED SIBERIAN, YELLOW SIBERIAN. Excellent for pickling and preserving.

PEARS

Pears are so delicious that they certainly should have a prominent place in the home orchard. They are also rather an important consideration as a market-crop, so that anyone who has room for them can well afford to plant a few extra trees.

Pears do well on a variety of soils—clay, loam, sandy, gravelly, and red soil. The one requirement is that the soil be well drained. Plant standards about 20 feet apart; dwarfs 10 to 12 feet apart.

When well grown and well packed, leading varieties of Pears command a ready sale and are profitable to grow. One of the secrets of success in Pear culture is to *study your market.* If you are distant from points of demand, select varieties that will stand shipping without injury, and that are good keepers. Take time and care to plan your orchard; it will pay you handsome profits in the end if well managed.

We have a great liking for pears—we enjoy growing the trees, and are partial to the fruit, and for a number of years have been carefully developing such varieties as we know will

succeed well throughout the South. While not by any means the hardest to grow, not *all* Pear trees will succeed in *all* localities. We have been particularly careful in making up this list to include only such as we *know* will do well in the South.

Make your selection of varieties from the following list, according as you wish to use the fruit—whether for immediate use or to keep, whether in midsummer or in late fall. Place your order with us and you'll surely be pleased with the trees you get and the way they bear.

The varieties under each sub-division have been arranged in order of ripening.

How to Ripen Pears; When to Gather

Pears must be gathered and ripened in the house; otherwise they lack the proper flavor. Commence to gather as soon as the early specimens show signs of ripening, leaving on the trees those not yet developed, and gather later. Keep the fruit in clean boxes or drawers until ripe. If you wish to retard the ripening, keep the fruit in a cool place. Do not pull the fruit too green, and do not put it where there is much heat, as it will shrivel.

Summer Pears

KOONCE. The best very early Pear. Ripens a week before the Early Harvest. Medium to large size; yellow, one side covered with red; does not rot at the core. Very productive; handsome and vigorous.

EARLY HARVEST. Tree a strong grower; hardy. Fruit large, yellow, with a showy blush. Valuable for market. Last of June.

EARLY GREEN SUGAR. Below medium size; juicy and good. Very hardy, and bears a heavy crop each year. First week in July.

RANKIN. Tree a strong grower; hardy. Similar to Duchesse d'Angouleme, but two weeks earlier.

SECKEL. Small, short; yellowish brown, with russet-red cheek; rich, juicy and melting; extra-fine quality. August.

BARTLETT. Large; yellow; rich, juicy, fine-grained, tender and melting. Early August.

Autumn Pears

DUCHESSE D'ANGOULEME. Very large, short Pear-form; pale green and brown; very juicy, rich. Best of the very large Pears. Grown mainly as a dwarf. September.

EFFIE HOLT. Large; greenish yellow; flesh light yellow, rich and juicy. Very prolific. Superior for the South; ripens late in the fall. Keeps well.

Oriental Strain of Pears

The most reliable class of Pears for the South. Good growers and productive.

CONKLETON. From Texas. Similar to its parent, Le Conte, but hardier in tree. A young and prolific bearer. Fruit size of Le Conte; better in quality, firmer in texture; a fine shipper.

LE CONTE. Fruit large and fair quality. Young and very prolific bearer; tree very hardy. Its beautiful fruit and foliage make it decidedly ornamental as well. September.

Winter Pears

JAPANESE GOLDEN RUSSET. Unusually productive; bears in clusters; early; medium size, flat or apple-shaped; rather poor quality.

GARBER. As hardy as the Le Conte or Kieffer, and of same class. In growth and appearance much like Kieffer; ripens one month sooner and is of better quality.

KIEFFER. Originated near Philadelphia. Supposed to be a seedling of Chinese Sand Pear crossed with the Bartlett. Size large; very handsome; skin yellow, with a bright vermilion cheek; juicy, with a musky aroma; quality good when fully ripened. As near blight-proof as a Pear can be. The tree is a rapid grower and very hardy. The fruit ripens late and is a better eating Pear when pulled and laid away for several weeks. Under the right conditions it can be kept until Christmas, but the best thing about it is its canning, cooking, and preserving qualities. It is superior for this purpose to all others.

MILLER. A seedling of Kieffer. Tree same in vigor and thrift; annual bearer. Late winter. The fruit is of extra-good quality, much superior to its parent; sweet, buttery, melting; russet skin. We consider this the BEST winter Pear, without question, for home use or market; keeps well.

MAGNOLIA. Origin southern Georgia. Large, broad to roundish; surface smooth, yellowish russet, tinged with brown on the sunny side; dots numerous, irregular; flesh white, crisp, tender, juicy, mild subacid; quality medium. Three or four weeks later than Kieffer. Very valuable on account of its lateness. A prolific bearer; a thrifty, dwarfish grower. The illustration shows a typical specimen of the Magnolia Pear tree two years after transplanting. Note the abundance of fruit—nine fully developed Pears in what is practically its first bearing year. If you are looking for quick results, plant Magnolia.

PLUMS AND DAMSONS

As a home fruit, Plums are among the "indispensables." The trees will grow and bear nearly anywhere, and are frequently used as lawn trees, serving the double purpose of orna-

ment and usefulness. Families who keep poultry often plant Plum trees in the inclosure, where they provide shade for the fowls, which, in turn, do good work by destroping the curculio which often greatly damages the Plum crop.

Plum trees succeed in all soils except wet ones, but reach their highest perfection where there is considerable clay in the soil, or where there is a clay subsoil. The Japanese sorts and the Damsons, which are the most popular in the South, should be planted about 15 feet apart. We consider the Plum, especially the leading Japanese varieties and the Damsons, highly valuable, and they should be more generally planted.

If the finest fruit is desired, it is advisable to thin the crop. Plums are such free bearers that the fruit will not develop properly nor reach perfection in flavor without this operation. Thinning is also helpful in controlling fruit-rot.

Not all classes of Plums will succeed in all locations, but those listed below will do well in nearly every part of the South. They are not hard to grow; soil and climatic conditions that produce good peaches will likewise prove congenial for Plum trees.

VARIETIES AND CLASSES OF PLUMS. We list our Plums below in three classes, as follows: Japanese varieties and crosses; Chickasaw; and European and their seedlings. Chief among these are the Japanese varieties; for the South they are more valuable than all others. Nine-tenths of the Plum trees we sell annually are of the Japanese varieties. We have been growing and experimenting with Japanese Plums as long as anyone in this country, and we feel that we have secured the very best varieties.

All family orchards should contain a few JAPANESE PLUMS —just as many as you can afford to plant. They begin to bear very early, and when you transplant them properly and give good attention, you will probably get a small crop the second year after planting, and good crops the third and fourth years.

They bear enormously, the fruit sticking to the limbs sometimes almost as thick as grapes. The quality is very fine; there is no fruit with finer quality than Japanese Plums. They are really the greatest acquisition we have had in the fruit line for years. Commencing to ripen with the early peaches, they continue on from June to August.

These Plums have proved to be a grand success. They have been fruited all over the South, and they bear more good fruit at the earliest age of any trees in cultivation.

Japanese Plums and Their Crosses
In the order of ripening

RED JUNE. Early, ripens with early peaches; medium to large; enormous bearer; color red all over; fruit pointed; flesh yellow and very fine in quality. Extensively planted for domestic use and for shipping to markets within a reasonable distance.

ABUNDANCE. Medium, roundish; skin yellow, washed with purplish crimson, with a blush; flesh yellow, juicy, subacid, with apricot flavor; quality superb. First week in July.

OGON. The best early yellow; ripens in late June. Color of skin golden yellow; flesh yellow; sweet and good; freestone.

BURBANK. Large; clear cherry-red; flesh deep yellow, very sweet and agreeable flavor. Tree a vigorous grower and very prolific. Last half of July.

CHABOT. Similar to Abundance, but nearly a month later. Large; yellow ground, nearly covered with crimson; flesh yellow, solid, fine quality.

WHITE KELSEY. Size and shape of old Kelsey; creamy color; delicious flavor; no rot. Last of July.

WICKSON. Very large; glowing carmine; flesh firm, sugary and delicious. The largest of its class and the best keeper. Mid-August.

Miscellaneous Varieties

WILD GOOSE. The best of the Chickasaw group. Large; red. Well known.

GREEN GAGE. Delicious; greenish yellow. The best of the European class.

PURPLE DAMSON. The old standard for preserving.

SHROPSHIRE DAMSON. Dark purple; juicy; larger than the common Purple Damson.

APRICOTS

One of the best of fruits and highly prized. Where it can be grown there is no fruit of better quality. Unfortunately, the blooms come early and are often killed by late spring frosts. In favored localities it should be freely planted.

NECTARINES

EARLY VIOLET. A delicious variety of fine flavor. White, with reddish cheek. Will grow in sections where peaches succeed.

GRADY. In size, almost equal to Elberta peach; quality very fine; color light red on yellow ground. August.

CHERRIES

Everyone likes Cherries, and anyone with even a little room may plant a few trees. They can be kept pruned to small size so as not to take up much room, and so can be planted even in very limited areas, such as front or side lawns on town lots. A comparatively small Cherry tree, if given some attention, will bear a good deal of fruit; and you will never question that it pays to plant a few trees if you keep account for a season

of the money you pay out for such fruit. A thrifty Cherry tree is really very attractive, and when planted on the lawn becomes ornamental as well as thoroughly practical.

We divide our Cherries into two classes: the "Hearts and Bigarreaus," or sweet Cherries, and the "Dukes and Morellos," or sour Cherries. The sweet varieties are more valuable for eating from the hand, while the sour varieties are best for canning and preserving. Sweet Cherries are large, standard growers, while the sour kinds are rather dwarfish, but with good attention they attain considerable size.

The sweets succeed throughout the Piedmont and mountain sections, but are not profitable in the lowlands and cotton-belt of the South. The sours also do well in the Piedmont and mountain sections, and succeed moderately well only in the cotton-belt.

The Cherry succeeds in any of our well-drained soils, but attains the greatest perfection in a soil where there is considerable gravel. Cherry trees fail in wet soils.

A Cherry orchard can be made the source of profitable income if properly handled. It should be cultivated frequently, though not deeply, the early part of the season—say until July—and then planted with some good cover-crop which can grow for the remainder of the season, and serve as a protection to the roots during the winter. Fertilizers should be applied with judgment.

Hearts and Bigarreaus. Sweet Cherries

TARTARIAN. Large; dark red, nearly black. A splendid Cherry for eating fresh. Ripe middle of May.

GOVERNOR WOOD. Large; light yellow. Middle of May.

NAPOLEON. Large; pale yellow. Early in June.

TURNER'S LATE. Medium; black; prolific. Middle of June.

Dukes and Morellos. Sour Cherries

MAY DUKE. Rather large; dark red; one of the best of the Duke class. Downing in "Fruits and Fruit Trees of America," says this variety "when ripe is perhaps the richest of the subacid cherries." May 20.

RICHMOND. Medium; red. Middle of May.

MORELLO (Common.) Full-medium size; very hardy and prolific. June.

MONTMORENCY (Ordinaire.) Similar to Early Richmond, but larger and about ten days later.

HOKE. A Duke variety; originated in Pennsylvania. Large, roundish, heart-shaped; dark, purplish red; skin thick, tough, resisting rot in wet weather; small stone; flavor subacid, sprightly; quality best. Ripe last of May.

BALDWIN. A large, tart Cherry. Fruit very large and handsome; tree a fine grower and great bearer. This Cherry has attracted more attention than any introduced in recent years, and succeeds where the old Morello does. Ripens two weeks before Morello. Early, hardy and productive.

PEACHES

In the South the Peach is the most highly prized fruit, the most luscious, and the easiest to obtain. Every farm, garden, and lot should have its quota of Peach trees, and where given even moderate attention, the owner is well repaid. A half-dozen trees will make a good start toward a family orchard, and almost every home place has room for that number, or even more. You and your family are missing one of the joys of life if you do not grow a few Peaches, Grapes, Berries and other fruits.

When Peach trees bear a good crop, they are quite as profitable as apples, or more so, and the demand for first-grade

fruit is generally much greater than the supply. When planted in a congenial soil, and given the proper care, trees live for many years, while fruit of high quality is assured if attention be given to spraying, thinning, etc.

It has been our object for many years to select only the best varieties, and the following list represents such as we know to be strictly reliable in every way, and perfectly adapted to the soil and climate of the South.

The seed from which we grow our stock is the best obtainable, coming from a section of our state where the dangerous disease, "yellows," is unknown. We use buds from healthy trees, and are careful to keep our varieties unmixed, so that our patrons will get trees true to name. Our Peach trees "ripen up" well in the nursery; they are healthy, hardy, and come into bearing early.

CULTURE AND CARE OF PEACH TREES. When possible, plant on the highest point on your premises, northern or northwestern exposure; plant 15 to 20 feet apart each way. Cut trees back to a single stem; this will make the tree form a low, spreading head. In succeeding years, in January or February, prune closely, shortening in all the previous year's growth. Cultivate well, plow deep between rows, but not close enough to old trees to damage roots, bark the trees, or break the limbs. Crop with cowpeas, putting in about three rows of peas between the rows of trees. Experienced growers recommend that, in order to preserve the beneficial effects of the nitrogen which the peas store in the soil, some green crop should be kept continually growing on the land.

VARIETIES AND DESCRIPTIONS. Varieties are arranged below in order of ripening period here in middle-western North Carolina. Will ripen one week earlier in eastern North Carolina, South Carolina, and northern Georgia; two weeks earlier in southern Georgia and Alabama and in Mississippi; about one week later in Virginia; two weeks later in Maryland and

Delaware; and four to five weeks later in northern New Jersey and New York.

In the following list, often two or more varieties ripen together. By planting about eighteen varieties, you will have Peaches every week without a break through the entire season from May to October. This applies especially to home orchards. Commercial plantings are most profitable when relatively few varieties are used. If unacquainted with varieties, you can safely leave selection to us or to our salesman.

May Peaches

MAYFLOWER. The earliest Peach; the latest to bloom. Fruit medium, slightly oblong and pointed; red all over; juicy and good. The beautiful solid red of the Mayflower makes it sell well on the markets. On account of blooming later than most varieties, thus rarely getting killed by late spring frosts, it sets too much fruit, and in order to keep it from overbearing and to have large fruit, it is *very necessary* to thin this variety. Last week in May. Semi-cling.

June Peaches

VICTOR. Origin Texas. Closely follows Mayflower. Good size; flesh white; skin white, covered nearly all over with light red. A valuable sort.

SNEED. A valuable early Peach. Size medium to large; color greenish white with a crimson blush, slightly mottled on end. When ripened on tree it is good, and the skin comes off easily with the fingers. Ripens five days after Mayflower. Semi-cling.

ARP (Arp Beauty.) One of the best early Peaches, valuable for home, orchard and market. Fruit medium to large; flesh yellow and quality good. Ripens with Greensboro. Excellent shipper, making it a particularly good commercial sort. Semi-cling.

ALEXANDER. Medium; quality fair; color bright red. Tree hardy and good bearer. Sells well on markets. June 15 to 20. Semi-cling.

GREENSBORO. Fruit large, well colored; flesh white and juicy. A heavy bearer. Semi-cling. Freestone when fully ripe.

RED BIRD. Hardy tree, good bearer. Fruit large; brilliantly colored; fair quality and a splendid shipper. June 15 to 20. Cling.

July Peaches

CARMAN. Large; well colored. Bears well; good shipper. Early July. Semi-cling.

CAMELLIA. Similar to, and ripens with, Carmen; better quality. Semi-cling.

CONNETT (Connett Southern Early.) Fruit large, creamy white with a blush; small seed; quality good. Rather tender or market, but a valuable family sort. Ripens with Carman. Nearly a freestone.

HILEY (Early Belle.) A seedling of Belle of Georgia, but ten days earlier. Rich creamy white, with fine blush. Good market sort. Freestone.

MOUNTAIN ROSE. Medium; white and red; flesh white and rich. Perfect freestone.

EARLY CRAWFORD. Large; yellow; fine quality. Ripens July 20. Freestone.

CHAMPION. Large, round; sweet, rich and juicy; creamy white, with red cheek. Good bearer. Of Oldmixon family. Latter part of July. Freestone.

BELLE (Belle of Georgia.) Fruit large and showy; skin white, with red cheek; flesh white, firm and of excellent flavor. Prolific bearer. July 25 to 30. Free.

CHINESE CLING. Large; skin transparent cream-color, with marble of red next the sun; flesh creamy white; very juicy and melting. July 25. Cling.

EARLY ELBERTA. Golden yellow, blending into red. Quality better than Elberta. Ripens ten days earlier. One of the best bearers.

LEESVILLE (Pride of Leesville.) A new variety. Beautiful red, with creamy flesh of excellent quality. Ripens between Connett and Hiley. Good bearer. Freestone.

STONEWALL. A seedling of Chinese Cling which it resembles very closely, but, being so hardy and prolific, it bears three times as much fruit. Ripens same season. Cling.

BURKE. Very large, roundish oblong; skin pale cream-color, slightly shaded on sunny side with red; flesh white, juicy, melting and sweet. Last of July.

PRESTON. Large; similar in appearance to Chinese Cling; higher colored but more hardy and a better grower; ripens just after that variety; best quality. Cling.

August Peaches

STUMP. Large, nearly round; color blush-red on creamy white ground. One of the finest of midsummer Peaches. Ripens late July and early August. Freestone.

ELBERTA. Large; golden yellow, striped with red; flesh yellow, juicy, sweet and rich; tree prolific; strong grower. Hardy; apparently free from rot. In quality, quantity, and profits, the Elberta is one of the greatest market Peaches. August. Freestone.

LATE CRAWFORD. Large; yellow, with red cheek. August 10. Freestone.

MUNSON FREE. Very prolific, rarely failing. The fruit is of large size, well colored and of delicious flavor. August 5 to 15. Freestone.

CROTHER. Medium; red cheek; white flesh; splendid quality; productive. August 5 to 15.

J. VAN. Highly colored Elberta seedling. Yellow flesh; skin rich yellow, well covered with red. A beauty. High in quality. Small seed. Somewhat roundish. Just right for size. Large flowers. August 8 to 18. Freestone.

INDIAN BLOOD. The genuine old-fashioned Indian. Cling.

AUGBERT. An "August Elberta." Fruit large, handsome; superb quality; freestone. Tree very productive; fruit ships well. Ripens two to four weeks later than Elberta. Seedling of Elberta, crossed with Salway. Trade-marked. August 20 to 30.

TIPPECANOE. Large; yellow, with a red blush; quality very fine. As a canning fruit it is the Peach par excellence. August 20. Cling.

LEE. Very large; white, with a pink blush; similar to Burke Cling, but a month later. A very prolific bearer. The best white cling of its season. Middle August.

NETTIE CORBET. The best of the Indian class of Peaches. Large; dingy yellow; flesh fine-grained, vinous, with streaks of red, mingled with yellow. August. Freestone.

MATTHEWS (Matthews Beauty.) One of the best late August freestones. Very large; yellow.

September Peaches

SMOCK (Beer's Smock.) Large; yellow. An improved seedling of the old Smock; highly prized as a canning, drying, and market sort. First week in September. Freestone.

FOX (Fox Seedling.) A valuable freestone sort for home, canning, or market. Excellent quality; melting, sweet, highly flavored; white, with red cheek. Trees bear regularly.

HEATH. Large; white; rich, juicy. Ripens first half of September. Cling.

SALWAY. Large; creamy yellow, with a rich crimson-yellow next the sun; flesh deep yellow, slightly stained with red next the seed. High in quality. September. Free.

EATON (Eaton's Gold.) Medium; yellow; with a peculiarly fine apricot flavor. The finest yellow cling for the last half of September. Especially good for sweet pickles. Cling.

October Peaches

BILYEU. Large; white, with a lovely rose cheek; flesh white, very rich, firm, and juicy. A popular canning and shipping Peach for the mountains. Early October. Freestone.

GLADSTONE. Large, roundish; flesh light yellow, rich melting, juicy, not inclined to toughness, as are other October cling Peaches; skin light yellow, overlaid on one side with splashes of crimson; prolific. Seeds small, cling.

STINSON. Large; red blush; handsome; excellent quality keeps well. Cling.

Dwarf Peaches

We can supply in limited quantities VAN BUREN'S GOLDEN DWARF and SLEEPER'S DWARF.

Peaches for the South

There may be other good Peaches, but this selected and recommended list is hard to beat. Given in order of ripening.

MAYFLOWER.	HILEY.	AUGBERT.
VICTOR.	BELLE.	MATTHEWS.
ARP.	BURKE.	EATON.
GREENSBORO.	ELBERTA.	STINSON.
CARMAN.	MUNSON FREE.	GLADSTONE.

DISTANCES FOR PLANTING

Often trees are planted too close, thereby retarding their growth and development. The following we consider advisable.

	Feet apart each way
Standard Apples	25 to 35
Peaches	15 to 20
Standard Pears	20
Dwarf Pears	10
Sour Cherries and Nectarines	20
Sweet Cherries	25 to 40
Shade Trees	30 to 40
Plums and Apricots	15
Japanese Plums	12 to 15
Quinces	10
Grape-Vines	10 to 20
Gooseberries and Raspberries	4
Pecans	40 to 60

Number of Trees or Plants Required Per Acre Where Planted Various Distances Apart

1 ft. apart each way	43,560	14 ft. apart each way	222
2 ft. apart each way	10,890	15 ft. apart each way	193
3 ft. apart each way	4,840	16 ft. apart each way	170
4 ft. apart each way	2,725	17 ft. apart each way	150
5 ft. apart each way	1,742	18 ft. apart each way	134
6 ft. apart each way	1,210	19 ft. apart each way	120
7 ft. apart each way	888	20 ft. apart each way	108
8 ft. apart each way	680	25 ft. apart each way	69
9 ft. apart each way	537	30 ft. apart each way	48
10 ft. apart each way	435	40 ft. apart each way	27
11 ft. apart each way	360	50 ft. apart each way	17
12 ft. apart each way	302	60 ft. apart each way	12
13 ft. apart each way	257		

If it is desired to plant a certain number of feet apart in the rows, and have the rows a different number of feet apart, then multiply the distance in feet between the rows by the distance apart the plants are in the rows, the product of which divided into 43,560 will give the number of trees, etc., required per acre.

STRAWBERRIES

Of all the small fruits or berries, the Strawberry, is beyond doubt the most popular for both garden and field use. There is always a ready market for good berries, and with a small amount of care, an excellent crop can be produced, which will net more than many other crops now grown. Any good soil that will grow vegetables may be used for Strawberry plants, but for best results mix well-rotted manure with the soil before setting the plants. After they have started to grow, add concentrated or commercial fertilizers. Plants may be set 1 foot apart and 3 feet between the rows. In a garden plot, say 12 feet by 25 feet, or 10 by 30 feet (that is 300 square feet), 100 plants can be set out and these should produce 100 quarts of excellent fresh berries.

Varieties

CAMPBELL'S EARLY.	GANDY.
MISSIONARY.	SENATOR DUNLAP.
LADY THOMPSON.	BIG JOE.
GREENSBORO FAVORITE.	BRANDYWINE.

Everbearing

PROGRESSIVE. SUPERB.

Everbearing strawberries that yield fruit almost continuously from May until frost, have been known for a long time.

To obtain large sized friut in the fall, keep flowers picked off until about first of August.

In setting plants be sure to spread the roots out when planting in row.

Plants set with roots all bunched up and untwisted, seldom do well.

Mulch plants thoroughly with leaf-mold, straw or leaves. Keep weeds out of rows. Dip the plants in water as soon as received, and bury the roots in moist, shady ground until ready to plant. Do not let roots get dry.

RASPBERRIES

Varieties

BLACK.
- CUMBERLAND.
- GREGG.
- KANSAS.
- PLUM FARMER.
- SHAFFER'S COLOSSAL.

YELLOW.
- GOLDEN QUEEN.

RED.
- CUTHBERT.
- COLUMBIAN.
- EATON.
- EMPIRE.
- KING.
- MILLER.

ST. REGIS. A genuine, practical, profitable, continuous-to-fall bearing red raspberry. Fruit commences to ripen with the earliest and continues on young canes until October. Berries, bright crimson, large size, rich, sugary, with full raspberry flavor. Flesh firm and meaty, a good shipper. Wonderfully prolific. Canes stocky, of strong growth, with abundance of dark green feathery foliage.

BLACKBERRIES

Plant 4 feet apart in rows 6 feet apart. Pinch the canes back when 3 or 4 feet high. Light, moderate rich land is preferable. Give frequent cultivation during spring and fall.

Varieties

BLOWER. This berry is beyond doubt the best blackberry in cultivation. It is a large berry of long fruiting season, from July till October.

EARLY HARVEST.—A good southern bearer.

ELDORADO.

MILLER.

WARD.

SNYDER.

TAYLOR.—A good late variety.

DEWBERRIES

Dewberries do not need a rich soil. The richer the soil, the more vine and less fruit. The vines if trained on a frame or trellis and not allowed to get too thick, will produce an abundance of fruit. The LUCRETIA is the best variety to plant. Set plants 2 feet apart in row, rows 5 feet apart.

CURRANTS

Varieties

FAY'S PROLIFIC. Easily picked, very productive. One of the best red sorts.

BLACK NAPLES. Valuable for jellies and jams; musky odor.

PERFECTION. A good bright red variety.

POMONA. A profitable, heavy bearer; clear bright red berries, very few seeds.

WHITE GRAPE. A good white sort. Less acid than the reds.

RED CROSS. A large subacid, good quality.

VICTORIA. A good late variety.

BOSKOOP. Claimed to be one of the best black variety.

Set 4 feet apart in rich soil, cultivate well or mulch heavily; prune out old wood so that each remaining shoot will have plenty of room.

GOOSEBERRIES

Plant 3 feet apart, and 4 feet between rows. Cultivate same as currants.

Varieties

DOWNING.
HOUGHTON.
RED JACKET.
JOSSELYN.

GRAPES

It is a pity that Grapes are not more generally grown in the fruit gardens of America. The vines need little care other than pruning, and this is by no means difficult. Of course, a trellis is desirable, but not absolutely necessary, for the vines may be trained on a fence, over a pergola, or even made to provide shade for a rear porch or veranda. When we consider the small amount of labor required to produce a large supply of this luscious fruit, we say, "Plant Grape-vines."

The varieties in this list begin to ripen in July and continue to ripen in the order given.

MOORE'S EARLY. Black, with blue bloom. Bunches are of medium size, but the berries are very large and round; quality is exceptionally good. Early.

CAMPBELL'S EARLY. Black. Clusters and berries large; flavor quite sweet and rich. A good keeper and one of the best early varieties.

WINCHELL. (Green Mountain.) White. The bunches are large and well filled with berries of medium size. Early.

LUTIE. Brownish red. For southern home use and local markets, this variety is unsurpassed. Bunches and berries large, with an abundance of sugary juice. Early.

BRIGHTON. Coppery red. Large bunches, packed full of large and extra-fine berries. Strong-growing and extremely productive vines. Early.

DELAWARE. Red. The bunches and berries are small, but the sweetness and flavor surpass many of the larger sorts.

DIAMOND. Yellowish white, tinted with yellow when ripe. Large bunches; berries set close together on a long stem. Vines are hardy, vigorous, and produce abundantly.

MARTHA. White, turning to pale yellow. Bunches and berries of average size; skin is thin, with sweet, juicy flesh. A little earlier than Concord.

NIAGARA. White; the standard market sort of this color. Bunches medium size, bearing many large berries. Vines strong, healthy and bear fruit in midseason.

BRILLIANT. Light purple, with lighter bloom. Large berries. Delicious for dessert.

LINDLEY. Red. On account of the size of both bunches and berries this is an exceptional sort to market. Midseason.

CONCORD. Dark purple or black. A popular sort; extra-large bunches and berries. Vines will grow almost anywhere and produce an abundance of fruit. Midseason.

WORDEN. Black. A thrifty and vigorous vine, producing large, handsome bunches packed full of sweet berries. Midseason.

CATAWBA. Coppery red. Large, loose bunches of good-sized berries. Flavor sweet and rich. Late.

SOUTHERN MUSCADINE TYPE OF GRAPES
(Scuppernong Family)

A varied species in the South, rarely failing to bear a heavy crop of delicious fruit. The vines seem to be free from all diseases and does not require so much cultivation as other types of Grapes; even with little care you may expect to secure an extra large crop of fruit, but it will pay to prune properly.

It is advisable to plant a male vine in conjunction with others of this class, unless there are wild Scuppernong vines growing nearby. The plants should be set about 20 feet apart and trained on a three-wire trellis, using the six-arm renewal system. Vines must be pruned each season. Write the United States Department of Agriculture, Washington, D. C., for Bulletin No. 709, "Muscadine Grapes," which gives full information and culture for this class. The varieties in the following list are arranged in the order of ripening.

EDEN. Black. Berries medium size, somewhat acid in flavor. Begin to bear when quite small and produce unusually large crops. It is the earliest of the Muscadine Grapes.

MEMORY. Jet-black. Berries are very large, produced in good-sized clusters; fruit is juicy, tender, with a good percentage of sugar.

THOMAS. Cark reddish purple. Fruit is sweet and tender and the quality seems to surpass all other varieties of the Muscadine class. This variety has been carefully tested by the U. S. Department of Agriculture and various state experiment stations, and pronounced the best all-round black Scuppernong.

SCUPPERNONG. Bunches bear from eight to ten unusually large bronze berries; the fruit is pulpy, of sweet flavor and good quality. Vines are prolific and free from disease.

MISH. Black. Medium-sized berries which are delicious, rich and of splendid flavor.

JAMES. Black. The berries are probably the largest of this class, frequently measuring 1¼ inches in diameter.

FLOWERS. Black. Bunches have from fifteen to twenty-five berries, which are of delicious sweet flavor. Ripe about October 1, approximately a month later than Scuppernong.

Pruning Grapes, see page 51.

PART FIVE

LAWN MAKING

A good lawn is everything to a beautiful home. Regardless of how many beautiful evergreens, flowers or shrubbery you may have, unless you have a "green carpet" of grass, around and in front of your home, the place will not show up good.

One thing is absolutely necessary in having a good lawn, which is a good deep soil. If soil is not rich it must be made so, if grass is desired to grow. Another important thing to consider is drainage. Avoid perfect levels. A curved, sloping, rounded surface will drain off the surface water, and more satisfactory results can be obtained.

Surface Preparation

First apply a thick coat of well rotted stable manure to plot where you wish a lawn. Turn under at least 10 inches deep. Rake to a smooth surface, roll with a good roller, rerake and roll again. If after rolling, depressions are noticed, fill up with soil, rake over them and roll again. Repeat this until a fine, smooth seed bed is obtained.

Sowing Seed

Probably the best time to sow seed in this section is in September, although good results are shown from spring sowing. On account of producing weed-seeds on your grass plot, it is best not to apply stable manure on the surface, but rather leaf mould, sheep manure, bone meal, or good commercial fertilizers suitable for lawns instead. Sow seed in strips across

your lot, bend down low and sow evenly across each strip. After this, rake with a good sharp tooth rake, and sow seed over same ground again. Roll immediately after sowing.

Water after 6 p. m. with a fine mist nozzle in dry times, thoroughly saturate the surface, but do not hold nozzle long enough in one place to make a wash.

In late fall or early spring, apply lime, sifting it on the surface evenly. Lightly re-sowing the whole plot is advisable. Roll your lawn every month, first one way and then criss-crossing.

Lawn Grass Seed

Different locations and soils require different seed mixtures, so it is hard to give a general formula to meet all localities.

I have found the following mixture, most satisfactory in Northern Virginia, as well as in the south-western part, and I am of the opinion that it will give satisfactory results throughout this section.

65% Kentucky Blue Grass.
15% White Clover.
15% Red Top.
5% Perennial Rye.

Nearly all seed dealers have grass-seed mixtures, which they recommend very highly. Most of them are good and will, if properly sown, bring good results.

Amount of Seed Required

The amount of seed to be used depends somewhat upon the season, and upon the soil to be sown. It is always best to sow plenty.

1 pound will sow 300 square feet.
5 pounds will sow 3,000 square feet.
15 pounds will sow ¼ acre.
60 pounds will sow 1 acre.

Taking Care of Lawn

Apply dressings of fine compost or fertilizers which are specially manufactured for lawns, in the fall or early spring. Where soil is thin or under shade of trees, it is necessary to reseed these spots and apply compost more heavily, every spring.

I have found leaf-mold applied in the fall, very satisfactory as a cover for lawns.

SPRAY, SPRAY, SPRAY

If you want to save the cherry, the pear, quince and berry,
The apricot to make the sherry, and to keep you merry,
Then I pray: Spray, Spray, Spray.

If you want to save the Yew, on our drive and avenue;
Before the bugs get through, then let me tell you
This very day; Spray, spray, spray.

If you want to save the tree, that has sheltered you and me;
Then from scale keep it free, I request of thee;
Harken, what I say; Spray, spray, spray.

There's a thousand parasited, fighting very good fights;
They are working days and nights, ten thousand little mites.
It's up to you to-day: Spray, spray, spray.

If you want to save the oak, while there's still a little hope,
You'll be glad I spoke, before he's in pieces broke;
Reminding you to-day: Spray, spray, spray.

PART SIX
SPRAYING

Nearly every plant that grows in the orchard, lawn or vegetable garden, whether it be flower, bush, tree or shrub is infested with some insects or parasite that demands active and prompt fighting. It is not a difficult matter under ordinary conditions to keep most of the pests in subjection, though it cannot be done without a certain amount of labor and more particularly accurate preventive measures.

Spraying Dormant Trees
San Jose Scale

San Jose scale is a sucking pest, adheres closely to the bark; it is encased in a very small shell, somewhat resembling a miniature oyster shell. It is carried from limb to limb and from tree to tree by birds, caterpillars, bees, etc. Unless your spray pump develops enough force to drive the liquid well into the bark, you do not get a thorough job.

During the winter months when the wood is not frozen and the wind not blowing too hard is a good time to spray your trees and deciduous shrubbery. If you use the home-boiled lime sulphur or commercial lime sulphur, you can make it test 33 degrees on the Baume hydrometer with perfect safety. If you use soluble sulphur compound, scale-side or any of the brands on the market, you can use it full strength as per directions for this spray.

Many people wait too long before spraying, and often late spraying for San Jose scale does more damage to the young tree by burning than the scale.

Avoid drenching; a fine mist is best. Drops of solution, hanging on the tip limbs will surely burn the already present bud spurs.

If it were possible to scrape off all the encrusted scale of a large tree from the tipmost branches to the ground, and then with a paint brush, paint every limb with solution, we would soon get rid of the pest, for one season at least.

Try this method on one of your worst scaled trees, in your yard at your leisure this fall, and note the difference in foliage or fruit.

The following article published in the *Roanoke Times*, January 22, 1918, by Mr. Patrick Foy, for many years in charge of the N. & W. Ry. Landscaping Dept. Mr. Foy is considered by many parties, as also by the writer, as one of the best authorities on trees, flowers and shrubbery, in this section. Probably no other man has done more to beautify Roanoke in its "Big Lick" days, than my friend and co-worker, Mr. Patrick Foy.

The Care of Trees

Editor The Roanoke Times:

Being much impressed with the effort of Mr. Reed, of Highland Park, in arousing public attention to the necessity of spraying trees, in his clever poetical composition, "Spray, Spray, Spray," in your columns a few days ago, I wish to not only approve the wisdom and foresight of this very progressive citizen in this matter, but will try to give a detail of my experience and recommendations for the eradication of our most troublesome pest, the San Jose Scale.

Where trees are only slightly affected, spraying is all that is necessary, when well done, say in the fall, after leaves drop, if possible, and weather permits, as it will not do to spray in very cold or windy weather; and in the spring, just before the sap arises. But through neglect and oversight a great number of trees have gotten so weakened from lack of attention that the most radical effort has to be resorted to to save the life of same. It is a well known fact that when San Jose scale is allowed to continue its ravages uninterrupted for a few years it becomes a solid scale or crust over the entire trunk and branches, which naturally prevents the flow of sap and results in a slow but sure death of all such neglected trees. And I find through years of experience that the only way the life of these trees can be saved is by first reducing the branches as much as possible, then the entire surface should be carefully scraped so that all scale as well as tough bark is removed, and immediately sprayed.

I have seen trees so treated that were given up as beyond recovery and they were restored to good healthy trees and remained so for many years.

Then there are other trees which have gotten beyond the powers of the most expert tree worker to revive them, but are allowed to remain indifferently in the place where they were planted and to the great detriment of the other trees in the vicinity, as trees, like human beings, will spread their infection, and you know that all trees in the condition last mentioned should be cut down and burned.

There are several kinds of spraying solutions, all of which are effective and inexpensive and can be purchased locally.

For small trees, shrubs, and roses, a small hand spray will answer every purpose.

Very truly yours,
PATRICK FOY.

FALL WEB WORMS

Caterpillars or Fall Web Worms do considerable damage to shade and fruit tree foliage during the summer months.

Especially is this pest troublesome on shade trees on the streets of cities. Nearly all trees are subject to the ravages of this pest, but it seems they are worse on Oriental Plane, Norway Maple, Mulberry and Catalpa.

A violent stomach poison is probably the best means of killing this pest, and should be applied to foliage during the summer months. Spraying with a power spray, beginning about June 1-10th with Arsenate of Lead (see spray formula

on page 114) is considered the surest way of eradicating this pest.

Arsenate of Lead readily dessolves in water and adheres to the foliage, better than almost any other material.

If the first brood of caterpillars is not taken care of, the second brood will be larger, and harder to eradicate.

Considerable good can be accomplished by destroying the webs on trees as soon as noticed.

These caterpillars leave their nests during the day, and find fresh foliage to feed on, returning to their web-like nests at night. If these nests then are destroyed in the early morning or late in the evening, many caterpillars can be destroyed this way.

A good way to destroy the nests is by burning. A long pole provided with a bundle of rags saturated in kerosene is fastened to end of pole, apply a match and hold blaze under nests, care being taken not to hold too long at one place. Also be sure that the blaze does not come in contact with tender limbs, on account of injury to same.

BANDING TREES FOR CRAWLING INSECTS

There are good tree bands, and sticky pastes on the market that if applied to trees in early spring, will greatly help reduce the numbers of many crawling worms, insects, etc., such as canker-worms, ants, moths, and caterpillars. Bands must completely encircle a tree and should be high enough so that children and animals cannot reach them.

BAG WORMS

Bagworms are very destructive on shade trees and evergreens. They are particularly noticeable in the fall and winter, on leafless trees, and their baglike cocoons or cases, are often

found in numbers. This pest seems to thrive best on evergreens, especially Arborvitea, although I have noticed numbers of them feeding on Willow, Mulberry, Maple, and Oak, nearly defoliating the trees completely.

Probably the best way to destroy this pest is to hand pick the bags, duing the winter months.. But on evergreens this is more difficult and spraying with arsenate of lead seems to be the only remedy.

I have found the following solution effective in controlling and in several cases completely destroying the bagworm on Arborvitea. Apply at least 2 times during the summer season. (Late spring and early fall.)

Arsenate of Lead Paste	1 pound
Water	30 gallons
Whale Oil Soap	¼ pound

A power spray pump that will develop enough force to spread in a fine mist over the tree, is the only apparatus that can be used successfully. Hand sprays are not effective for this work.

BLIGHT

PEAR BLIGHT. This is a much dreaded, and serious bacterial disease. It is carried from other blighted trees by ants, lice, caterpillars and bees to the tender spurs and buds of pear, apple, quince, plum and other trees. Some orchards have been completely destroyed within a short time by blight.

Watch for blight in your trees in the spring. If leaves droop and look withered as if scalded by hot water, lose no time, but get busy at once. Blight attacks the tender shoots and water sprouts, and if unchecked, will shrivel the bark on the tree, causing cankers and death to the limb, as soon as the limb becomes girdled with the blight.

BLIGHT CONTROL

Procure a paddle about 8 inches long and on the end tack a piece of cloth, (several layers thick) and saturate the cloth with carbolic acid. With a sharp knife or pruning shears cut off the blighted twigs 5 or 6 inches below the blight, and wipe the blades of your tools off with the acid soaked rag on the end of your paddle. Disinfect all open cankers and wounds with Corrosive Sublimate 1-1000. Wipe your knife on acid rag everytime a twig is cut. Gather and burn every twig and limb cut off. Examine your plum, peach and apple for open cankers and disinfect thoroughly.

By using the above method of blight control, the writer saved an orchard of 700 Keiffer pears and 100 apple trees during a blight epidemic in Craig County, Va., in 1910.

SPRAY FORMULAS

Black Leaf 40

For Thrips, Leaf Hopper, Wooly Aphis, and all sucking insects: One ounce to 8 gallons of water.

One-half pound laundry or whale-oil soap added to the above will help spread the spray and add to its efficiency.

Bordeaux Mixture

Copper sulphate	4 pounds
Lime (Stone)	4 pounds
Water	50 gallons

The method of making Bordeaux mixture consists in dissolving the required amount of copper sulphate in an equal number of gallons of water, the copper sulphate being placed in a sack and suspended in a vessel. The amount of lime required may be slowly slacked in another vessel and then

brought up to a thick milk with a known quantity of water. The amount of the copper solution for a vessel may then be diluted practically to the capacity of the vessel used, and then the lime milk is poured in, stirring constantly. The solution should be strained.

Hellebore

Hellebore .....1 ounce
Water .....3 gallons

Hellebore is much less poisonous than the arsenical compounds, and soon loses its strength when exposed to the air. If hellebore is properly applied it is very effective in destroying chewing insects. Use only fresh powder.

Copper Sulphate

Copper sulphate ..... 1 pound
Water .....15 gallons

This makes a good wash for dormant trees.

Formalin

For scabby potatoes, soak for 2 hours the uncut tubers in the following solution:

Formalin ..... 1 pint
Water .....30 gallons

Do not plant potatoes on land which has produced scabby potatoes. If you have scabby seed, soak in the above solution. After tubers are dry, cut the plant in clean soil. The formalin solution can be used repeatedly.

ARSENATE OF LEAD

If a fungicide is desired, add 8 pounds of 4-4 Bordeaux mixture to each 50 gallons.

Amounts to Use

Insects	Powdered (50 gals. water)	Paste (50 gals. water)
Potato Beetles	2 lbs.	4 lbs.
Squash	2 lbs.	4 lbs.
Cabbage Worm	1 lb.	2 lbs.
Currant Worm	1 lb.	2 lbs.
Grape Vine Beetle	1½ lbs.	3 lbs.
Berry Moth	1 lb.	2 lbs.

Arsenate of lead is a most deadly poison among the standard insecticides and *must* be kept away from stock and children.

DUSTING

There are now on the market good dusting materials applied with dusting guns which, it seems, is rapidly taking the place of liquid spraying. Even four years ago I obtained good results from a hand-dusting gun in controlling slugs, cabbage worms and potato beetles. The dust should be applied early in the morning or late in the evening when there is more moisture. The particles of dust must be light and fluffy so they will "float" through the air, as well as very adhesive.

DORMANT SPRAY FORMULAS

San Jose Scale. (Shade Trees and Fruit.)
Oyster Shell Bark Louse. (Shade Trees and Fruit.)
Bud Moth. (On apple.)
Blister Mite. (Pear Trees.)
Peach Lencanium.

Spray shortly after the leaves have fallen and again in late winter or early spring before the buds swell. The spray to be

most effective, should be applied under high pressure in a fine misty spray thoroughly covering the tree.

Concentrated Lime Sulphur	1 gallon
Water	8 gallons
Soluble Sulphur (powdered)	12½ pounds
Water	50 gallons

Thoroughly agitate liquid in pump.

Kerosene Emulsion

A 20% solution of Kerosene Emulsion has been used and good results obtained, if properly applied, during the dormant period. Purchase Kerosene Emulsion already prepared, and follow directions.

Arsenate of Lead

Insects	Powdered (50 gals. water)	Paste (50 gals. water)
Fall Web Worm	1½ lbs.	3 lbs.
Tussock Moth	1½ lbs.	3 lbs.
Elm Beetle	1½ lbs.	3 lbs.
Gypsy Moth	1½ lbs.	3 lbs.

BAGWORM

Arsenate of Lead Paste	1 pound
Water	30 gallons
Whale Oil Soap	¼ pound

Mix thoroughly.

Yellow Striped Beetle on Cucumbers, Melons, Etc.

The yellow-striped beetle is the most serious pest of the cucumber and melon.

A probably safe method to protect the young vines until 3 or 4 weeks old is to put hoods made of mosquito netting over them. Fasten the sides down tight to the ground with pegs or clods of dirt or stone. With small stakes set around the plants in ten or wigwam fashions, and the netting placed over them.

Bordeaux Arsenate of Lead mixture is also recommended as a good spray.

Bordeaux	3 ounces
Water	1 gallon

QUANTITY OF SPRAYING SOLUTION REQUIRED FOR TREES

I have received many inquiries asking how much liquid is required to spray a certain tree or trees.

Experience has shown that for a thorough job, and for best results the following approximate amount of liquid should be used.

Age of Tree	No. of Gallons
1-6	1
6-10	1½
10-16	2½
16-20	4
20-30	9

PROTECTING YOUNG TREES FROM RABBITS

The wise orchardist will examine his trees in the fall, especially if there is grass or weeds growing near them. He will not wait until the rabbits have ruined a few trees before

taking precautions. With trees costing 65c. to $1.00, it is bad judgment to delay protection which will cost but 1½c. to 2c. a tree.

Where the grower has only a few young trees or some re-sets in an old orchard, heavy paper or corn stalks may be used to wrap them, which may prove the cheapest.

Where the acreage is large it will usually be more economical to buy tree protectors such as wood veneer wrappers, which are quoted at $15.00 per 1,000 for 20 by 10-inch protectors. If a more permanent protector is desired that will last many years, wire protectors may be secured, at $8.75 a 100 in thousand lots for 4 by 15-inch protectors. Many firms handle tree protectors. They should be purchased from the nearest source of supply to avoid delay.

CAUTION. Many growers have reported injury from the use of axle grease applied to trunks of young trees to keep rabbits and mice away. Don't use any caustic material.

PART SEVEN

FLOWERS FOR THE HOME

ANNUALS, PERENNIALS, WATER LILIES AND AQUATICS

IN OLD VIRGINIA

I love the mountains wreathed in mist
The twilight skies of amethyst,
The groves of ancient oaks sunkissed
In Old Virginia.

I love the gorgeous trumpet flowers,
Wild rose and honeysuckle bowers,
The woodland incense after showers
In Old Virginia.

I love the laughter of the rills,
Cloud shadows stretched athwart the hills,
The jocund song of him who tills
In Old Virginia.

I love the martial ranks of corn,
Their blades agleam with lights of morn,
The curtains of the night withdrawn
In Old Virginia.

I love the Ocean's deep-toned roar,
Surf-lashed to foam on wind-swept shore,
The spray-born rainbow arching o'er
In Old Virginia.

I love the modest maidenhood,
The deference paid to womanhood,
The chivalric and gentle blood
In Old Virginia.

I love the love of native sod,
The simple faith that trusts in God.
The heads bowed 'neath the chastening rod,
In Old Virginia.

—*B. B. Valentine.*

ROSES

Order Early

To obtain the best results with spring planted Roses, they should be put into the ground as early in March as the temperature and condition of the soil will permit. Where rate is not prohibitive, we would advise ordering shipments by express; the plants will come to you more safely packed and in much livelier condition than if sent by mail or slow freight.

Treatment on Arrival

If upon arrival the roots seem to be very dry, soak them thoroughly in water; if the stems as well are too dry, bury the entire plant in the ground for two or three days. At no time after unpacking should the roots be exposed to the sun or dry winds; a very little neglect at this time working serious if not fatal injury to the bush.

Planting

In preparing a Rose Bed, select a sunny location guarded from cold north winds, if possible. Dig out the beds to a depth of two or three feet and about three feet in width; then refill

the trench with a mixture of soil (any good fertile soil will do) and well rotted cow manure, making provision for good drainage if location is not naturally drained. Time should be allowed for this filling to settle, the final top surface being an inch or two below the edges of the bed. Do not raise the surface of Rose beds above the surrounding surface. They suffer less from drought when left level with the turf. Plant your Roses in the center, being very particular to press and tamp the soil firmly around the roots; and soaking the bed thoroughly at the finish. The Everbloomers may be set 18 inches apart, the Hybrid Perpetuals about 2 feet. After the plants have been set out, keep the soil loose to the depth of an inch or two, by frequent stirrings. An occasional soaking with weak manure water is a great help to Roses of all sorts, and is especially active during the blooming season. Towards the end of July, a *mulch* of long-strawed manure will aid in preserving what moisture is in the soil during the customary droughts of the "Dog Days."

Protect for the Winter

By covering bed at least 6 inches with leaves or manure; a binding surface of dirt, cornstalks or boughs on top. A convenient method is to confine this dressing by an enclosure of 12 inch chicken wire.

Pruning

Roses are usually shipped with most of their wood, but it is a mistake on the part of many planters to put them in the ground untrimmed. The weak shoots are usually removed by us before sending stock out, so that what the customer gets is all ready to plant except cutting back. Hybrid Perpetual Roses should be cut back, every shoot, to about 6 to 8 inches

above the crown or that part above the roots where the stem begins to branch. Teas and Hybrid Teas need not be cut back quite so hard; the Polyanthias not at all unless stems are too numerous. *Every Spring*, usually the fore part of March, just before the leaf buds begin to swell, these classes should be treated similarly and the winter covering gradually removed. The Rugosas are pruned merely to keep their growth within bounds and to remove dead wood; the Hardy Climbers are merely trimmed, and inasmuch as their bloom comes only on wood made the season before, the safest and most beneficial time for pruning is immediately ofter their blooming season and before they make new summer growth. *Suckers* from the Manetti stock should be cut off at once, and may be recognized by a difference in color and arrangement of seven leaves, instead of five, as in almost all varieties of Roses. Do not be afraid of the knife; the flowers will be larger and richer in color, and the bed more sightly.

Capacity of Rose Beds

Although in warm localities, where plant growth is luxurious, a greater interval is necessary, 18 inches apart is generally accepted as the proper spacing. On this basis, beds 4½ feet wide will take three rows, and if six feet long will require a dozen plants. Or a dozen plants would occupy a 3-foot bed with two rows nine feet long. Delightful arrangements in odd shapes, and by combination of various classes, may be worked out according to the individual planter's fancy and ingenuity.

HARDY TEA AND HYBRID TEA.

American Beauty.....Brilliant Red.
Gruss An Teplitz.....Rich Crimson.
K. A. Victoria.....Creamy White, Very Fragrant.
Killarney.....Pink and White.
La France (Tea).....Silvery Pink.

Madame Caroline Testout.....Salmon Pink.
Maman Cochet.....Pink and White.
Mrs. Aaron Ward.....Golden Orange.
Madame Ravary.....Yellow.
Ophelia.....White, Shaded with Salmon Pink.
Radiance.....Coppery Red.
Rhea Reid..Scarlet Crimson, large flowers, bush.
Sunburst.....Bronzy Yellow.

HYBRID PERPETUAL.

Anna de Diesbach.....Brilliant Rose.
Clio.....Satin Blush, Rosy Pink.
Gen. Jacqueminot.....Red and Old Favorite.
Frau Karl Druschki.....White.
Geo. Arends.....Rose.
Magna Charta.....Bright Rose Pink.
Mrs. J. H. Laing.....Clear Pink.
Paul Neyron.....Ruddy Pink.
Ulrich Brunner.....Cherry Red.

MOSS ROSES.

Perpetual White.
Salet, Light Rose.
Henry Martin, Red.

RAMBLERS AND CLIMBERS.

Climbing American Beauty.
Crimson Rambler.
Dorothy Perkins, Pink.
Dorothy Perkins, White.
Thousand Beauty, Soft Pink.
American Pillar, Red.

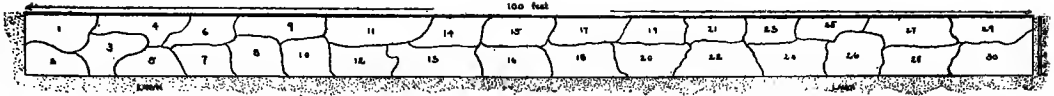
Rosa Rugoso Rubra, glossy wrinkled foliage, bright crimson flowers, 4-5 feet high. Makes beautiful low hedge, bears beautiful red berries in fall.

By permission of Henry A. Dreer, Specialist in flower seed, 714-716 Chestnut Street, Philadelphia, Pa., the following articles are published. Hardy Perennial Plants, Dreer's Borders of Hardy Plants, Growing of Flowers From Seed, Annuals and How to Grow Them, by L. H. Bailey, of Cornell University. Raising Hardy Perennials From Seed, by Wm. Falconer, and Water Lilies and Aquatics by Henry A. Dreer.

HARDY PERENNIAL PLANTS

Of all the plants that are cultivated for purely ornamental purposes there are none which have made such rapid strides in public favor as the OLD-FASHIONED HARDY GARDEN FLOWERS, the inhabitants of the perennial garden. Their popularity is not at all surprising when we consider the many varied and pleasant changes which take place throughout the entire growing season in a well-arranged hardy border, in which every week—yes, every day—brings forth something fresh and new to interest and delight even the most critical. Beginning in April, the early-flowering varieties open their flowers often before the snow has entirely disappeared, and continue with constant changing variety, throughout the summer until late in the fall, when only severe freezing weather will stop such persistent late-blooming kinds as Japanese Anemones, Pompon Chrysanthemums, Gaillardias, Gentians, Tritomas, etc.

Twenty years ago there were very few Hardy Borders outside of some large establishments where one or more professional gardeners were employed, who were familiar with the beauties of the hardy borders as found in almost every garden on the other side of the Atlantic, and who knew how to plan, and plant, and care for them. But a great change has taken place in this country within the last ten years, and there is now a steady and growing interest in this class of plants, and to-day

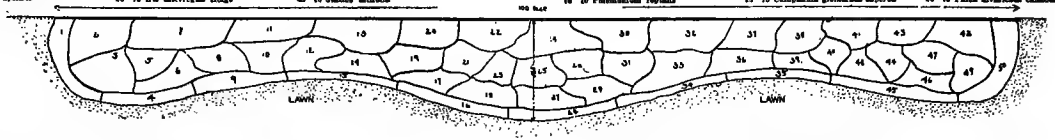


Plants for Border No. 1 If in a Sunny Position

Section		Section		Section	
1	10 Achillea Ronis de Rosa	11	10 Salvia azurea grandiflora	21	10 Anchusa Dropmore variety
2	10 Sedum spectabile Brilliant	12	10 Aquilegia Chrysantha	22	10 Stokesia cyanea
3	10 Phlox Mrs. Jenkins	13	10 Phlox Mrs. Jenkins	23	10 Coreopsis lanceolata
4	10 Heliopsis eleanderum	14	10 Chelone Lyoni	24	10 Hypericum moserianum
5	10 Dictamnus fraxinella alba	15	10 Pyrethrum album	25	10 Campanula Van Houttei
6	10 Iris germanica Mme. Chereau	16	12 Tritoma Uvaria	26	10 Funkia lancifolia
7	10 Delphinium Belladonna	17	10 Helenium Autumnale rubrum	27	10 Aquilegia chrysantha
8	10 Iris Florentina Alba	18	10 Baptisia Leucantha	28	10 Phlox Miss Lingard
9	10 Physostegia Virginica	19	10 Helenium autumnale	29	10 Lysimachia Clethroides
10	10 Veronica Spicata	20	10 Iris interregna Helga	30	10 Statice latifolia

Plants for Border No. 1 If in a Shady Position

Section		Section		Section	
1	10 Aconitum Queen Charlotte	11	10 Salvia azurea grandiflora	21	10 Thalictrum aquilegifolium
2	10 Heuchera sanguinea alba	12	10 Lysimachia Fortunei	22	10 Mertensia Virginica
3	10 Anemone japonica	13	10 Hemerocallis flava	23	10 Spiraea palmata
4	10 Eupatorium coelestinum	14	10 Chelone Lyoni	24	10 Sedum spectabile Brilliant
5	10 Campanula medium Calycanthema	15	10 Cephalaria alpina	25	10 Hemerocallis Thunbergi
6	10 Dianthus barbatus	16	10 Dictamnus fraxinella	26	10 Funkia lancifolia
7	10 Aconitum Napellus	17	10 Aquilegia chrysantha	27	10 Spiraea palmata, d. pl.
8	10 Iris Florentina Alba	18	10 Trollius europæus	28	10 Veronica Longifolia subsessilis
9	10 Physostegia Virginica	19	10 Delphinium Belladonna	29	10 Lysimachia Nummularia
10	10 Veronica Spicata	20	10 Phlox Miss Lingard	30	10 Phlox Stellaria candensis

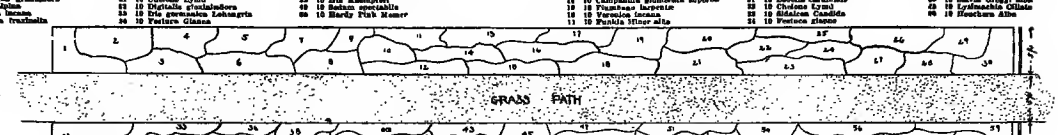


Plants for Border No. 2 If in a Sunny Position

Section		Section		Section	
1	10 Hardy Pink Diamond	11	10 Aquilegia chrysantha	21	10 Iris orientalis
2	10 Iris germanica Loreley	12	10 Phlox Mrs. Jenkins	22	10 Helenium autumnale
3	10 Hypericum Moserianum	13	10 Anchusa Dropmore variety	23	10 Pyrethrum Hybridum
4	10 Plumbago larpenta	14	10 Heliopsis eleanderum	24	10 Cephalaria alpina
5	10 Eupatorium Ageratoides	15	10 Helenium autumnale superbum	25	10 Aster Feltham Blue
6	10 Funkia lancifolia	16	10 Lobelia cardinalis	26	10 Pentstemon rubescens
7	10 Scabiosa Caucasica	17	10 Scabiosa caucasica	27	10 Hardy Chrysanthemums
8	10 Hemerocallis Dumortieri	18	10 Delphinium Gold Medal	28	10 Scabiosa caucasica alba
9	10 Campanula carpatica	19	10 Pyrethrum album	29	10 Helenium autumnale
10	10 Aster novæ-belgii	20	10 Stokesia cyanea alba	30	10 Phlox Eugenius
11	10 Physostegia virginica	21	10 Veronica officinalis rosea Erica	31	10 Funkia grandiflora
12	10 Tritoma Pfitzeri	22	10 Alyssum saxatile compactum	32	10 Veronica Spicata
13	10 Physostegia paniculata	23	10 Salvia azurea grandiflora	33	10 Salvia azurea grandiflora
14	10 Platycodon grandiflora	24	10 Chelone Lyoni	34	10 Iris Knappteri
15	10 Aconitum Napellus	25	10 Digitalis purpurea	35	10 Funkia variegata
16	10 Veronica incana	26	10 Iris germanica Lohengrin	36	10 Hardy Pink Moner
17	10 Dictamnus fraxinella	27	10 Statice Gmelina		

Plants for Border No. 2 If in a Shady Position

Section		Section		Section	
1	10 Aquilegia flabellata nana alba	18	10 Lythrum Virgatum	35	10 Primula Veris
2	10 Stokesia cyanea alba	19	10 Chelone glabra alba	36	10 Platycodon grandiflorum
3	10 Mertensia Virginica	20	10 Funkia ovata	37	10 Thalictrum speciosissimum
4	10 Cerastium tomentosum	21	10 Spiræa palmata	38	10 Pardanthus chinensis
5	10 Hesperis matronalis	22	10 Aconitum Napellus	39	10 Scabiosa caucasica
6	10 Funkia lancifolia	23	10 Aconitum autumnale	40	10 Trollius europæus
7	10 Digitalis gloxinæflora	24	10 Gaillardia Golden Wings	41	10 Trachelium Asperuloides
8	10 Hemerocallis Dumortieri	25	10 Anemone Queen Charlotte	42	10 Anemone Hupehensis
9	10 Myosotis palustris semperflorens	26	10 Hemerocallis flava	43	10 Hemerocallis Florham
10	10 Euphorbia corollata	27	10 Hypericum moserianum	44	10 Thalictrum Adiantifolium
11	10 Phlox subulata Nelsonii	28	10 Potentilla nepalensis	45	10 Veronica spicata
12	10 Spiræa Aruncus fl. pl.	29	10 Tunica saxifraga	46	10 Anthem Hymenolidium
13	10 Hemerocallis Thunbergi	30	10 Armeria Laucheana	47	10 Lobelia cardinalis
14	10 Campanula glomerata superba	31	10 Lobelia cardinalis	48	10 Salvia Greggi alba
15	10 Plumbago larpenta	32	10 Chelone Lyoni	49	10 Scabiosa Caucasica
16	10 Veronica incana	33	10 Aldsicea Candida	50	10 Heuchera Alba
17	10 Funkia Sieboldii	34	10 Physostegia Virginica		



Plants for Border No 3 If in a Sunny Position

Section		Section		Section	
1	10 Sedum spectabile Brilliant	11	10 Iris interregna Helga	41	10 Funkia ovata
2	10 Gypsophila paniculata	12	10 Platycodon grandiflorum	42	10 Scabiosa Caucasica
3	10 Dictamnus fraxinella alba	13	10 Phlox Riverton Jewel	43	10 Pyrethrum Hybridum
4	10 Physostegia Virginica	14	10 Hemerocallis Gold Dust	44	10 Delphinium Belladonna
5	10 Digitalis gloxinæflora	15	10 Aster Novi Belgii Climax	45	10 Aconitum Napellus
6	10 Stokesia cyanea	16	10 Funkia ovata	46	10 Hemerocallis Thunbergi
7	10 Aster tataricus	17	10 Veronica Spicata	47	10 Physostegia paniculata
8	10 Phlox Eugenius	18	10 Gaillardia Grandiflora	48	10 Scabiosa caucasica alba
9	10 Delphinium chinense	19	10 Veronica Lohengrin	49	10 Aconitum Napellus
10	10 Aster Funkia White Japanese	20	10 Funkia lancifolia	50	10 Poppy fringetail
11	10 Eryngium Amethystinum	21	10 Helenium Riverton	51	10 Aquilegia flabellata nana alba
12	10 Veronica incana	22	10 Rudbeckia maxima	52	10 Pyrethrum album
13	10 Aconitum Dropmore variety	23	10 Lychnis viscaria splendens	53	10 Eupatorium coelestinum
14	10 Aquilegia Chrysantha	24	10 Aster Feltham Blue	54	10 Phlox Miss Pearl Dutrie
15	10 Aquilegia Chrysantha	25	10 Rudbeckia purpurea	55	10 Funkia subcordata
16	10 Plumbago larpenta	26	10 Lobelia cardinalis	56	10 Hypericum Moserianum
17	10 Chelone Lyoni	27	10 Phlox M. C. Lass	57	10 Hypericum Moserianum
18	10 Helenium Autumnale superbe	28	10 Iris germanica Mme. Chereau	58	10 Delphinium Belladonna
19	10 Spiræa glauca	29	10 Dictamnus fraxinella	59	10 Rudbeckia Newmani
20	10 Aconitum autumnale	30	10 Salvia azurea grandiflora	60	10 Funkia undulata
21	10 Salvia Pitcheri	31	10 Lysimachia Ciliata	61	10 Achillea The Pearl

Plants for Border No. 3 If in a Shady Position

Section		Section		Section	
1	10 Sedum anacinalis Brilliant	11	10 Aconitum Napellus	21	10 Aconitum Napellus
2	10 Lobelia syphilitica	12	10 Digitalis gloxinæflora	22	10 Digitalis gloxinæflora
3	10 Ægopodium Podagraria variegata	13	10 Ægopodium Podagraria variegata	23	10 Hypericum Moserianum
4	10 Hemerocallis Dwarf Dust	14	10 Hemerocallis Dwarf Dust	24	10 Cimicifuga racemosa
5	10 Lysimachia nummularia	15	10 Lysimachia nummularia	25	10 Campanula glomerata
6	10 Dianthus barbatus	16	10 Dianthus barbatus	26	10 Hemerocallis Thunbergi
7	10 Dianthus plumarius	17	10 Dianthus plumarius	27	10 Myosotis palustris semperflorens
8	10 Dianthus Pheasant	18	10 Dianthus Pheasant	28	10 Chelone glabra alba
9	10 Dianthus Pheasant	19	10 Dianthus Pheasant	29	10 Lythrum roseum superbum
10	10 Dianthus Pheasant	20	10 Dianthus Pheasant	30	10 Sidalcea Rose Queen
11	10 Dianthus Pheasant	21	10 Dianthus Pheasant	31	10 Aquilegia flabellata nana alba
12	10 Dianthus Pheasant	22	10 Dianthus Pheasant	32	10 Spiræa ulmaria fl. pl.
13	10 Dianthus Pheasant	23	10 Dianthus Pheasant	33	10 Eupatorium coelestinum
14	10 Dianthus Pheasant	24	10 Dianthus Pheasant	34	10 Funkia lancifolia
15	10 Dianthus Pheasant	25	10 Dianthus Pheasant	35	10 Gillenia stipulata
16	10 Dianthus Pheasant	26	10 Dianthus Pheasant	36	10 Lysimachia Purpurea
17	10 Dianthus Pheasant	27	10 Dianthus Pheasant	37	10 Trollius asiaticus
18	10 Dianthus Pheasant	28	10 Dianthus Pheasant	38	10 Stachys lanata
19	10 Dianthus Pheasant	29	10 Dianthus Pheasant	39	10 Iris Pumila Purpurea
20	10 Dianthus Pheasant	30	10 Dianthus Pheasant	40	10 Gaillardia Golden Wings

almost everyone who is fortunate enough to have even a small garden devotes at least a part of it to hardy plants.

This change has, in a measure, been created by the many books on Gardening published in recent years, almost every one of which included a chapter or more on the hardy border, while some of them were devoted exclusively to hardy plants. Unfortunately, while nearly all of the books and magazine articles give glowing descriptions of the delights of the Hardy Border and describe in detail many of the plants, none, as far as we know, give any drawings or plans showing how such a border should be made, or showing the proper location for the various plants in same. The usual excuse for this omission is that each garden demanded special treatment and that no plan or set of plans could be used for any great number of places, and while this is in many cases true, we feel sure that the several plans which have been prepared by our own expert, embodying our own ideas, and which are reproduced on the next page, will enable many amateurs to undertake the making of a hardy border who have until now been deterred from doing so by not knowing how to go about it.

The plants which we have selected to fill the various sections in the borders are the kinds that always do well and are most likely to give satisfactory results. Some planters may prefer to make their own selection, and we like to encourage this, as it gives to every border a touch of individuality. This list should make it comparatively easy, even for a novice, to make a selection to fill a bed of any size or shape without making a serious blunder.

We recommend that all hardy borders should have a few clumps of spring-flowering bulbs interspersed along the front, including Crocus, Jonquils, Narcissus, Cottage Garden Tulips, etc. These should be planted from September to November and will greatly add to the interest of the border during the early spring months. We also suggest the putting of a few

clusters of Annuals here and there throughout the border to add color during the hot summer months. For this purpose there is nothing better than Marigolds, Gaillardias, Zinnias, Antirrhinums, etc., a few seeds of which can be sown during May in the spaces where they are wanted to bloom.

BORDERS OF HARDY PLANTS

These plans have been carefully revised and the plants selected to fill the various spaces are those that from experience we unhesitatingly recommend as the best of their respective types, and once planted will succeed with a moderate amount of care under ordinary conditions. The varieties have been arranged to give a succession of flowers and a variety of color throughout the border from the time Spring opens until frost in the Autumn, and a large majority of the sorts are suitable for cut flowers during their respective seasons.

Each border is 100 feet long by different widths and correspond in a general way to the ground usually available for hardy plants in the average garden. The number of plants and the space allotted to each variety permits of the borders being enlarged or diminished and still have the full assortment of varieties; for example, a border 120 feet in length will require 12 plants for each space, while a border 60 feet long will need but 6 plants for each space, the individual spaces being made longer or shorter as the case may be.

HINTS ON THE GROWING OF FLOWERS FROM SEED

We are convinced that many of the failures with flower seeds are due to lack of proper conditions; and while it would be impossible in the space at our disposal to give explicit directions for each and every variety which we offer we feel

sure that if the general directions here given are followed success will be the rule. These directions, we may say, are written for the latitude of Philadelphia. Customers living in other sections can readily adapt them to their localities.

For all flower seeds which should be started indoors, and this includes many of our best and brightest summer flowers, such as Heliotrope, Celosia, Lobelia, Salvia, Vinca, Verbenas, etc., the best plan is to sow in earthenware seed pans, or boxes (about 2 inches deep), which should be filled to the depth of an inch with broken pots, coal ashes, or any rough material that will furnish perfect drainage. The upper inch should be nicely sifted soil, composed, if possible, of about one-third each sand, leaf mould and light garden loam. Press firmly and evenly, and water thoroughly the day before sowing. Sow the seeds thinly over surface, cover about one-eighth of an inch and pressing firmly; cover with a pane of glass or one or two thicknesses of newspaper, to prevent the too rapid evaporation of the moisture, and keep in a temperature between 60° and 70°. Water carefully as needed. The importance of uniform attention to this detail is one that can only be learned by experience and observation. To omit a single watering, or too frequent indiscriminate watering, usually leads to failure. Remove the glass, or covering, as soon as the seeds have germinated, and when the seedlings are large enough to handle they should be transplanted into similarly prepared boxes an inch apart each way, or put into small pots and kept in same until time to plant out in the open ground. At all times they should have an abundance of air; otherwise the young seedlings are liable to "damp off."

For most of the annual flowers, such as Sweet Alyssum, Calliopsis, Calendula, Marigold, Mignonette, Nasturtium, etc., the simplest method is to sow directly out of doors when danger of frost is past in the space where they are intended to flower. The ground should be dug and raked fine on the sur-

face, sowing the seeds evenly and thinly, either in lines or beds covering not over four times their size, and firming the soil over them. Should they come up too thickly, as most of them are likely to do, thin out so that the plants will stand from 4 to 12 inches apart, according to the variety. This plan is also adapted to many varieties usually started indoors, including Asters, Verbenas, Celosias, Stocks, Salvia, etc.; but as a rule their germination is more certain under glass, and as they begin to flower so much earlier when started indoors the extra trouble is well repaid for by their increased blooming period.

ANNUALS AND HOW TO GROW THEM

By Professor L. H. Bailey, of Cornell University Written for Country Life in America

Annual plants are those that you must sow every year. The staid perennials I want for the main and permanent effects in my garden, but I could no more do without annuals than I could do without the spices and the condiments at the table. They are flowers of a season. I like flowers of a season.

Of the kinds of annuals there is almost no end. This does not mean that all are equally good. For myself, I like to make the bold effects with a few of the old profuse and reliable kinds. I like whole masses and clouds of them. Then the other kinds I like to grow in smaller areas at one side, in a half experimental way. There is no need of trying to grow equal quantities of all the kinds that you select. There is no emphasis and no modulation in such a scheme. There should be major and minor keys.

The minor keys may be of almost any kind of plant. Since these plants are semi-experimental, it does not matter if some of them fail outright. Why not begin the list at A and buy as many as you can afford and accommodate this year, then con-

tinue the list next year? In five or ten years you will have grown the alphabet, and will have learned as much horticulture and botany as most persons learn in a college course. And some of these plants will become your permanent friends.

For the main and bold effects I want something that I can depend on. There I do not want to experiment. Never fill a conspicuous place with a kind of plant you have never grown.

The kinds I like best are the ones easiest to grow. My personal equation, I suppose, determines this. Zinnia, Petunia, Marigold, Four O'Clock, Sunflower, Phlox, Scabiosa, Sweet Sultan, Bachelor's Button, Verbena, Calendula, Calliopsis, Morning-glory, Nasturtium, Sweet Pea—these are some of the kinds that are surest and least attacked by bugs and fungi. I do not know where the investment of five cents will bring as great reward as in a packet of seeds of any of these plants.

Before one sets out to grow these or any other plants, he must make for himself an ideal. Will he grow for a garden effect, or for specimen plants or specimen blooms? If for specimens, then each plant must have plenty of room and receive particular individual care. If for garden effect, then see to it that the entire space is solidly covered, and that you have a continuous blaze of color. Usually the specimen plants would best be grown in a side garden, as vegetables are, where they can be tilled, trained and severally cared for.

There is really a third ideal, and I hope that some of you may try it—to grow all the varieties of one species. You really do not know what the China Aster or the Balsam is until you have seen all the kinds of it. Suppose that you ask your seedsman to send you one packet of every variety of Cockscomb that he has. Next year you may want to try Stocks or annual Poppies, or something else. All this will be a study in evolution.

There is still a fourth ideal—the growing for gathering or "picking." If you want many flowers for house decoration and

to give away, then grow them at one side in regular rows as you would potatoes or sweet corn. Harvest them in the same spirit that you would harvest string beans or tomatoes; that is what they are for. You do not have to consider the "looks" of your garden. You will not be afraid to pick them. When you have harvested an armful your garden is not despoiled.

I like each plant in its season. China Aster is a fall flower. In early summer I want Pansies or Candytuffs and other early or quick bloomers. For the small amateur garden greenhouses and hotbeds are unnecessary, and they are usually in the way. There are enough kinds of annuals that may be sown directly in the open ground, even in New York, to fill any garden. All those I have mentioned are such. In general, I should not try to secure unusually early effects in any kind of plant by starting it extra early. I should get early effects with kinds of plants that naturally are early. Let everything have its season. Do not try to telescope the months.

I have sown China Asters in the open ground in early June, in New York State, and have excellent fall bloom. Things come up quickly and grow rapidly in May and June. They hurry. The spring bloom you are not to expect from annuals. That you are to get from perennials—the spring bulbs, soft bleeding-hearts, spicy pinks, bright-eyed polyanthuses and twenty more.

Make the soil rich and fine and soft and deep, just as you would for radishes or onions. There are some plants for which the soil can be made too rich, of course, but most persons do not err in this direction. The finer and more broken down the manure the better. Spade it in. Mix it thoroughly with the soil. If the soil is clay-like, see that fine manure is thoroughly mixed with the surface layer to prevent "baking."

Watering is an exacting labor, and yet half of it is usually unnecessary. The reasons why it is unnecessary are two: The soil is so shallowy prepared that the roots do not strike deep

enough; we waste the moisture by allowing the soil to become hard, thereby setting up capillary connection with the atmosphere and letting the water escape. See how moist the soil is in spring. Mulch it so that the water will not evaporate. Mulch it with a garden rake by keeping the soil loose and dry on top. This loose dry soil is the mulch. There will be moisture underneath. Save water rather than add it. Then when you do have to water the plants, go at it as if you meant it. Wet the soil clear through. Wet it at dusk or in cloudy weather. Before the hot sun strikes it renew your mulch, or supply a mulch of fine litter. More plants are spoiled by sprinkling than by drought. Bear in mind that watering is only a special practice—the general practice is to so fit and maintain the ground that the plants will not need watering.

The less your space the fewer the kinds you should plant. Have enough of each kind to be worth the while and the effort. It is more trouble to raise one plant than a dozen.

It is usually best not to try to make formal "designs" with annuals. Such designs are special things, anyway, and should be used sparingly and be made only by persons who are skilled in such work. A poor or unsuccessful design is the sorriest failure a garden can have.

This brings up a discussion of the proper place to put annuals. Do not put them in the lawn—you want grass there. Supposing that you grow the annuals for garden effect, there are two ways of disposing them—to grow in beds or in borders. Sometimes one method is better and sometimes the other. The border method is more informal, and therefore the simpler and easier.

Its pictorial effect is usually greater. But in some places there are no boundary lines that can be used for borders. Then beds may be used; but make the beds so large and fill them so full that they will not appear to be mere play-patches. Long beds are usually best. Four or five feet wide is about the

limit of ease in working in them. The more elaborate the shape of the bed, the more time you will consume on keeping the geometry straight and the less on having fun with the plants. Long points that run off into the grass—as the points of a star—are particularly worrisome, for the grass roots lock hands underneath and grab the food and moisture.

It is surprising how many things one can grow in an old fence. The Four-o'clocks (see cut) illustrate this point. Most persons owning this place would think that they had no room for flowers; yet there the Four-o'clocks are, and they take up no room. Not all annuals will thrive under such conditions of partial neglect. The large-seeded, quick-germinating, rapid-growing kinds will do best. Sunflower, Sweet Pea, Morning Glory, Japanese Hop, Zinnia, Marigold, Amaranths, are some of the kinds that may be expected to hold their own. If the effort is made to grow plants in such places, it is important to give them all the advantage possible early in the season, so that they will get well ahead of the grass and weeds. Spade up the ground all you can. Add a little quick-acting fertilizer. It is best to start the plants in pots or small boxes, so that they will be in advance of the weeds when they are set out.

First and last, I have grown practically every annual offered in the American trade. It is surprising how few of the uncommon or little-known sorts really have great merit for general purposes. There is nothing yet to take the place of the old-time groups, such as Amaranths, Zinnias, Calendulas, Daturas, Balsams, Annual Pinks, Candytufts, Bachelor's Buttons, Wall-flowers, Larkspurs, Petunias, Gaillardias, Snapdragons, Cockscombs, Lobelias, Coreopsis, or Calliopsis, California Poppies, Four-o'clocks, Sweet Sultans, Phloxes, Mignonettes. Scabiosas, Nasturtiums, Marigolds, China Asters, Salpiglossis, Nicotianas, Pansies, Portulacas, Castor Beans, Poppies, Sunflowers, Verbenas, Stocks, Alyssums, and such good old running plants as Scarlet Runners, Sweet Peas, Con-

volvuluses Ipomeas, Nasturtiums, Balloon Vines, Cobæas. Of the annual vines of recent introduction, the Japanese Hop has at once taken a prominent place for the covering of fences and arbors, although it has no floral beauty to recommend it.

For bold mass-displays of color in the rear parts of the grounds or along the borders, some of the coarser species are desirable. My own favorites for such are: Sunflower and Castor Bean for the back rows; Zinnias for bright effects in the scarlets and lilacs; African Marigolds for brilliant yellows; Nicotianas for whites. Unfortunately, we have no robust-growing annuals with good blues. Some of the Larkspurs are perhaps the nearest approach to it.

For lower-growing and less gross mass-displays, the following are good: California Poppies for oranges and yellows; Sweet Sultans for purples, whites and pale yellows; Petunias for purples, violets and whites; Larkspurs for blues and violets; Bachelor's Buttons (or Cornflowers) for blues; Calliopsis and Coreopsis and Calendulas for yellows; Gaillardias for red-yellows; China Asters for many colors

For still less robustness, good mass-displays can be made with the following: Alyssums and Candytufts for whites; Phloxes for whites and various pinks and reds; Lobelias and Browallias for blues; Pinks for whites and various shades of pink; Stocks for whites and reds; Wallflowers for brown-yellows; Verbenas for many colors.

I should never consider a garden of pleasant annual flowers to be complete that did not contain some of the "everlastings" or immortelles. These "paper flowers" are always interesting to children. I do not care for them for the making of "dry-bouquets," but for their interest as a part of a garden. The colors are bright, the blooms hold long on the plant, and most of the kinds are very easy to grow. My favorite groups are the different kinds of Xeranthemums and Helichrysums. The

Globe Amaranths, with clover-like heads (sometimes known as bachelor's buttons), are good old favorites. Rhodanthes and Acrocliniums are also good and reliable.

Some of the perennials and biennials can be treated as annuals if they are started very early indoors. A number of the very late-flowering annuals should also be started indoors for best success in the northern States, as, for example, the Moonflowers and the tall-growing kinds of Cosmos.

If flowers of any annual are wanted extra early, the seeds should be started indoors. It is not necessary to have a greenhouse for this purpose, although best results are to be expected with such a building. The seeds may be sown in boxes, and these boxes then placed in a sheltered position on the warm side of a building. At night they can be covered with boards or matting. In very cold "spells" the boxes should be brought inside. In this simple way seeds may often be started one to three weeks ahead of the time when they can be sown in the open garden. Moreover, the plants are likely to receive better care in these boxes, and, therefore, to grow more rapidly. Of course, if still earlier results are desired, the seeds should be sown in the kitchen, hotbed, cold frame, or in a greenhouse.

In starting plants ahead of the season, be careful not to use too deep boxes. The gardener's "flat" may be taken as a suggestion. Three inches of earth is sufficient, and in some cases (as when the plants are started late) half this depth is enough.

Of late years there has been a strong movement to introduce the hardy perennials into general cultivation. This is certainly to be encouraged everywhere, since it adds a feeling of permanency and purposefulness that is needed in American gardens. Yet I should be sorry if this movement were to obscure the importance of the annuals.

RAISING HARDY PERENNIALS FROM SEED

Written expressly for us by Mr. Wm. Falconer, of Pittsburgh

Hardy perennials are easily grown from seed. In many cases they are a little slower than annuals, but with intelligent care they are successfully raised, and from seed is an excellent way to get up a big stock of perennials in a short time. Many perenials, if sown in spring, bloom the first year from seed as freely as annuals; for instance, Gaillardias, Iceland Poppies, Chinese Larkspur, Lychnis, Shasta Daisy, Platycodon, etc. Others wait a year; that is, if sown this year they don't bloom until next year. These include Cardinal Flower, Golden Alyssum, Campanula, Pyrethrum, Columbines, Gypsophila, Polyanthus, Fox-gloves, Lythrum, Physostegia, etc. There is no rigid rule in this. It often happens that Hollyhocks, Delphiniums, Grass Pinks and others, if sown early in the season, bloom fairly well before the end of the first summer.

The seeds may be sown in spring or in summer. In spring the sowings may be made in the window, the hot bed, the cold frame, the greenhouse or in the open ground out of doors. In the window prepare pots or flower-pans or small, shallow wooden boxes or flats; fill to one-third their depth with fine broken cinders or broken pots, and over this place a thin layer of moss, chopped straw or rough siftings from the soil to keep the dirt from clogging the drainage; then fill up to within one-half or three-quarter inches of the brim with fine, free, mellow soil, with thin layer of very fine soil over it. Tamp the pot on table to firm the soil a little. Now sow the seed evenly, and shake a very little fine soil over it; press it all over with the back of the hand or a board, then water gently through a fine spray or rose; this done strew a little fine earth over all. In the case of very fine seeds covering only enough to hide the seed

is plenty, but Pinks, Gaillardias and other rougher seeded sorts one-eighth inch deep of covering may be given. Keep the seed pots in a warm, sunny window, but shaded with a thin curtain from drying sunshine. A sheet of paper laid over the pot at this time prevents over-drying, but when the sunshine passes, take off the paper, else damp or mold will set in. A pane of glass laid over the pots or flats until germination appears is an excellent preservative of the moisture in the soil, but always tilt it up at one side one-eighth of an inch or more. When the seedings come up, give them more light by keeping them close to the glass, and before they overcrowd one another or become spindly transplant them into other pots or flats, three-quarters or one inch apart from one another, according to their size and strength. As the weather gets mild, by placing the seedlings in a cool and airier place, as on the porch or a sheltered place out of doors, they become fairly inured to the open weather, and when they are large enough for final transplanting set them out in the garden.

The amateur may have more success and less bother growing hardy perennials from seeds sown in the open ground than in any other way. Prepare a bed in a nice, warm, sheltered spot in the garden, preferably not very sunny; let the surface of the bed be raised four or five inches above the general level, and the soil be a mellow, free, fine earth on the surface. Draw shallow rows across the surface of the bed, three to four inches apart, and here sow the seed, keeping the varieties of one kind or nature as much together as practicable; cover the seeds thinly, press the whole surface gently, water moderately, then dust a little fine, loose soil over all. If the weather is sunny or windy, shade with papers or a few branches, but remove these in the evening. When the seedlings come up thin them out to stiffen those that are left, and when they are two or three inches high, they are fit for transplanting, into permanent

quarters. All this should be done in early spring, say March, April or May, or in warmer localities a month earlier.

Again, in July or August perennials are very easily raised out of doors, and much in the same way as above. Observe how seedlings spring up in July or August in thousands around old plants of perennial Larkspur, Coreopsis, Hollyhocks and Fox-gloves. The same holds good with artificially sown seeds; carefully note somewhat similar condition. Transplant these seedling in late August or early September to get well-rooted stocky plants before winter sets in.

WATER LILIES AND AQUATICS
AND HOW TO GROW THEM

Written and Published by Henry A. Dreer, Inc., Phila.

All water, whether it be a lake, stream, pond or even a small pool, seems to hold a certain charm for everyone, and, when this water is inhabited and beautified by aquatic plants and fish, it becomes fascinating. More especially is this the case when the plants are Royal Victorias with their immense leaves and flowers or gorgeous tender Nymphæas and Nelumbiums, or the chaste and artistic hardy Water Lilies, and when we consider the ease with which these plants can be grown, there is no reason why every natural lake, pond and stream having the proper conditions, which are sunshine, still, warm water, and plenty of rich soil, should not be so beautified. Where stagnant pools exist it becomes a hygienic necessity to stock same with plants and fish for, as in the house aquarium, when poorly balanced with plant and animal life, the water becomes, and will remain, pure and sweet, and in place of a mosquito and malaria-breeding pool, we have a healthful and delightful aquatic garden. The varied colored water lilies given the same or similar conditions as those under which our

native varieties are found, will grow luxuriantly and flower profusely the entire season and will give more pleasure for the time and care expended in their cultivation than any other plants of which we know. When taken into consideration the amount of flowers produced and space covered by a single specimen Nymphæa, even the rarer and more expensive varieties become inexpensive compared to the cost of the most ordinary bedding plants.

SIZE OF PONDS. For those who have not the advantage of natural ponds or large artificial basins, there are many varieties which can be grown successfully in half-barrels or any water-tight receptacle having a diameter of two feet or more, but the greater the surface space, the better will be the results.

CONSTRUCTING PONDS. In constructing artificial ponds where the soil is not sufficiently retentive to hold water, a good method is to smooth and pound firmly the bottom and sides of the excavation, then cover the whole with a layer of six inches of puddled clay, pounding it well with wooden mauls so as to bring it into one solid mass. Cover the sides with rough stones or put on a thin layer of concrete. This will prevent the sides from washing. When ponds are built of cement or concrete below the level of the ground, the top of wall should be built in a wedge shape and plastered smooth with cement, both inside and out. This will prevent, to a great extent, the frost heaving it during the winter months. A total depth of two feet is sufficient; one foot for soil or tubs and one foot for water, with an overflow so constructed that the pond can be entirely drained or the water held at any level desired. In constructing ponds, except when in connection with formal gardens and buildings, they should be of as natural an outline as possible with here and there a clump of marshloving plants—a piece or two of rough rock-work, planted with rock plants—a clump of hardy ornamental grasses; hardy herbaceous plants and specimen flowering shrubs, but always leaving open space from

where the loveliest of all, the Water Lilies, can be seen and admired.

SOIL FOR AQUATIC PLANTS. The ideal soil is the natural muck of ponds, but all water lilies and Nelumbiums will grow well in any good garden or field soil enriched with one-fifth well-rotted manure or, if manure is not procurable, use 2½ pounds ground bone to each hundred pounds of soil or 1 quart ground bone to each bushel of soil.

DEPTH OF WATER. This may vary from a few inches to four feet, but all of the hardy Nymphæas will give better results if only covered by 12 inches of water during the summer months. For growing in water two feet or more deep, only the strong growing varieties of Nymphæas should be chosen. Tender Nymphæas and Nelumbiums should not have more than twelve inches of water above the crowns.

WATER SUPPLY. As all Water Lilies, and more especially the tender varieties, prefer still, warm water, it is a mistake to have any fountain or other continuous inflow of water in connection with artificial ponds or tanks, and in natural ponds, when such are fed with a large inflow of cold spring water, Lilies will not be a success. For artificial ponds and tanks it is best only to give enough fresh water to replace what is lost by evaporation, etc., and the best method of doing so is to give the ponds a good syringing from a hose late in the afternoon or early in the evening. The syringing, besides giving the necessary amount of fresh water, will be very beneficial to the plants, as it will keep in check green and black fly and keep the leaves free from dust.

The Culture of Hardy Nymphaeas

PLANTING IN NATURAL PONDS. The best results will be obtained when planted in the natural mud bed, but if the water should be too deep, construct boxes two feet or more square

by one foot deep and place in pond twelve inches below water.

PLANTING IN ARTIFICIAL POOLS. The entire bottom can be filled in with twelve inches of soil top dressed with two inches of sand or gravel, or the plants can be planted in tubs or boxes which will contain one bushel of soil more or less according to the growth and size of flowers desired. A water lily planted in one peck of soil will produce as many flowers, but the size of flowers and diameter of plants will be very much less than if same plant were planted in a greater quantity of soil. For this reason it seems to be good practice to plant into rather small tubs, for small pools allowing more variety to be grown and the size of plants and flowers are more in keeping with size of pool.

TO GROW IN TUBS AND HALF-BARRELS. Many of the Nymphæas and other aquatics, and all of the Nelumbiums can be successfully grown in half-barrels. To do this, fill the tubs half-full with soil, top-dressed with two inches of sand, allowing about six inches of water. Sink the tubs in the ground to within three inches of the top. When more than one tub is used a very ornamental effect can be produced by leaving a space between the tubs to be used as a miniature rock garden.

METHOD OF PLANTING. In planting Hardy Water Lilies in natural pools all that is necessary is to push the rhizome horizontally into the mud so that the growing crown will just be covered, placing a stone on top clear of crown so as to keep rhizome from floating before it takes root. In planting in tubs or boxes the soil should be rammed as firm as possible and top-dressed with two inches of sand or gravel, then plant as above.

TIME OF PLANTING. Hardy Nymphæas can be planted at any time from April to August. The best results, however, will be obtained if the planting is done just as they start into growth, which, in the vicinity of Philadelphia, is about May 1st.

DISTANCE APART. In small tanks or ponds there should be from three to six feet between each plant according to quantity of soil they are growing in; in large ponds or lakes the best effects are secured by planting in groups of six or more plants of one variety to each group, allowing eighteen inches between each plant and from ten to twenty-five feet between each group, depending upon the size of the pond, location, etc.

EXPOSURE. All Nymphæas and other flowering aquatics should be planted so that they will be exposed to full sunlight.

WINTERING. Hardy Nymphæas need no care during the winter, provided the water is of sufficient depth so that it will not freeze to the crown of the plants. In cement tanks drain off all the water and fill in with leaves or cover with boards and leaves or litter. Tubs may be wintered by emptying the water and removing to a cool cellar or greenhouse, or they may be covered with leaves and soil in the garden in such a manner that they will not freeze.

REPLANTING. Hardy Water Lilies which are being grown in tubs or boxes will require to be replanted every second or third year. This is best done in early spring just as they start into growth. The plants should be lifted, the soil fairly well shaken off and all side eyes or shoots cut off and the main rhizome or root stalk cut off at from four to eight inches from growing crown according to variety. The tubs should be refilled with fresh soil and the strong growing crowns replanted. The side eyes or shoots, if planted in separate tubs, using two or three eyes to each tub, will make flowering plants the same season.

In natural ponds where the Lilies are planted out, the strong rhizomed varieties, such as Alba and Marliacea and their varieties, will be benefited by above treatment every fourth or fifth year, but the Odorata and Tuberosa varieties if planted where they have sufficient room to spread will require no replanting or dividing.

FERTILIZING. All the Hardy Water Lilies will be very much benefited, especially those grown in tubs or boxes, if given a top dressing of ¼ inch of ground bone covered with ½ inch of sand in the spring, unless they have just been replanted, in which case they will require no fertilizer.

For those planted in natural ponds broadcast the bone on surface of water at the rate of one-half pound to every 100 square feet of surface.

The Culture of Tender Nymphaeas

These will grow and luxuriate under the same conditions as the hardy Nymphæas, but the more sheltered and warmer the location, the better will be the results. Where artificial heat can be introduced into the pond in early summer, the results will more than repay for the extra care and trouble. Tender Nymphæas should not be planted until after the weather has become warm and settled or at about the same time that such tender plants as Coleus, etc., are planted in the border. For those who have greenhouse accommodation it will be better to purchase dormant bulbs, which should be started into growth about April 1st by being potted into six-inch pots, placed in shallow tanks 10 inches deep under clear glass, the water to be at a temperature of 70° to 80°. Under these conditions they will be extra large plants by planting time.

SUMMER TREATMENT. If the very best results are wanted, Tender Water Lilies will require very liberal treatment during the growing season. After the plants are in active growth with a good spread of leaves, about July it will be very beneficial to fertilize the plants every seven or fourteen days according to their growth and weather conditions. The best fertilizer for this purpose is dried blood, applied at the rate of a small handfull to each plant by simply sprinkling above tub on surface of water. This fertilizer will sink and become immediately

available for the feeding roots and will do no harm to fish or other aquatic animals.

WINTER TREATMENT. Tender Nymphæas must be lifted as soon as they have been touched with frost and transferred to tubs of water in a warm greenhouse or cellar and kept there until the leaves have died off. The tubers should then be stored in moist sand and kept at a temperature of 60 degrees.

For those who have not the proper facilities, namely, heated greenhouse tanks, it will be much better to allow tender Nymphæas to freeze and replace with fresh stock each year.

The Culture of Nelumbiums or Lotus

These are supplied in tubers and should not be planted before May 1st. The treatment is the same as recommended for hardy Nymphæas excepting that they do best when planted in mud or soil that is at least two feet deep and covered only with six inches of water. When planted with other aquatics there should be partitions of brick or boards so as to confine the tubers, otherwise they will soon take possession of the entire pond. In planting, place the tubers horizontally in the mud so that the point will be merely covered.

The Culture of Victorias

These should not be planted in the open pond until after June 1st unless the pond is artificially heated, so that a temperature of 80 degrees can be maintained, in which case the plants may be planted as early as May 10th. For very best results each plant should have at least three cart-loads of soil for the roots and 300 square feet of water surface for the development of its leaves and a depth of from twelve to eighteen inches of water above crown of plant. From experiments made this past summer we find miniature perfect plants can be grown

if planted in half-barrels and submerged ten inches below surface of water. When grown this way leaves three feet in diameter can be had with a few small flowers making very interesting plants. In other respects their requirements are the same as recommended for tender water lilies.

Submerged Plants

All tanks, ponds or lakes should have submerged plants growing in them to ærify the water, thereby keeping it pure and sweet. The best plants for this purpose are Anacharis canadensis gigantea, Cabomba viridifolia and Vallisneria spiralis. These can be planted in water from six inches to two feet deep. Six plants in a pool ten feet in diameter will be ample.

Marginal Plantings

All pools, lakes and streams should have their margins beautified by suitable plantings.

Without a thorough knowledge of conditions and general surroundings, it is impossible to suggest just what to plant; but, on general principles for small and medium sized pools, a planting of the various bedding and ornamental greenhouse plants will be found very effective, including such popular subjects as Caladium esculentum, Cannas, Pennisetum, Ricinus, etc., all of which are described in our annual Garden Book; while the margins of large artificial pools, lakes and streams will be found admirable places for plantations of trees, shrubs and hardy perennial plants, bearing in mind that except in natural moist and springy places, that the banks of lakes and streams are nearly always suitable for growing plants which require a well-drained soil.

Fish

Fish should be in all ponds from the smallest tub to the largest lake, as they will destroy all mosquito larvæ and other insects. In lily ponds gold fish are preferable, being both useful and ornamental, and, if fed regularly at one place and hour, they will soon become very tame and will be found awaiting this expected meal, which may consist of a small quantity of rolled oats or corn meal. A tub should have two fish in it, and twenty-five fish will be sufficient to stock a pond one hundred feet in diameter.

Enemies

BLACK AND GREENFLY. These can generally be overcome by using a strong force of clear water from the hose which washes them off on to the water, where the fish can get them. If this fails, a solution of one teaspoonful of Nicoticide to one gallon of water, applied in a very fine spray, will destroy them.

LEAF MINERS. Which sometimes infest the floating leaves of Water Lilies. Use one ounce Arsenate of Lead to one gallon of water. Apply in fine spray once or twice a week.

NELUMBIUM CATERPILLAR. Dust with a mixture of one pound Slug Shot and one ounce dry Arsenate of Lead. Apply with powder bellows before sunrise. If applied later it will not stick to leaves and will be useless.

MUSK RATS. The worst of all aquatic enemies, are easily kept in check by steel rat-traps, set in their diving holes or about two inches under water, where their runs enter pond. Have the chain fastened to a stake driven into the mud well out in the water, so that when trap is sprung the rat will not be able to reach the bank or it will escape.

GREEN SCUM. The most troublesome and unsightly pest of the aquatic garden is very prevalent during May and June,

generally disappearing after the Water Lilies have attained their full growth. There does not seem to be any safe fungicide for it, and the best remedy is to flush the surface off with clear water every evening, if possible, allowing the pool to overflow. This, if carefully done, will get rid of it in a week or ten days time.

Growing Water Lilies From Seed

SOWING SEEDS OF HARDY NYMPHAEAS. Hardy Nymphæa are best sown in fall in half-barrels or tubs filled to within four inches of the top with soil. Sow the seeds thinly and cover with about ½ inch of sand; fill the tubs with water and place in a cool cellar or greenhouse where they will not freeze. In spring remove to a warm sheltered place in the open air where the seeds should soon germinate. Do not transplant the seedlings until the following spring when, after they have made one or two leaves, they can be planted in the pond the same as recommended for rhizomes. It is sometimes also advisable in stocking large natural ponds to sow the seeds by broadcasting on water where it is shallow and allow the seeds to take care of themselves naturally. This is best done in the autumn.

SOWING SEEDS OF TENDER NYMPHAEAS. Sow from January to April in pots or pans, using any good potting soil and cover the seeds with one-fourth inch of sand, give a thorough watering and allow to drain for an hour or more, then submerge in water fully exposed to sun and at a temperature as near 70 degrees as possible. Two inches of water over the soil is of sufficient depth. As soon as the seedings have made two leaves, put them singly into small pots and when well rooted repot into four or five inch pots, from which size they may be planted into their flowering quarters.

SOWING VICTORIA SEEDS. Sow Victoria Regia at any time between January 15th and April 1st in pots or pans, using

finely sifted soil. Cover the seeds with one inch of soil and a slight dusting of sand. Submerge the pots so that they will be four inches below the surface of the water, the temperature of the water to be maintained at 90° to 95°. After the seedlings have made two leaves, pot them singly into three inch pots and repot into larger pots as required. Seeds sown before February 15th should be in twelve inch pots or pans by May 15th. The water temperature can be reduced to 80° after the first potting.

To successfully germinate Victoria Trickeri, cut a small hole with the point of a sharp knife through the shell on the opposite side from where the germ is, sow and give the same treatment as recommended for V. Regia. Victoria Trickeri seed will germinate in water at a temperature from 70° to 95° and an atmosphoric night temperature of 60° to 65° will be sufficient for both varieties. To maintain as high a temperature as required to germinate and grow Victorias, a metal tank is best. This should be placed in as light a position and as near the glass as possible. Enclose it below with a wooden case and use a lamp or gas jet to give the desired uniform heat. All metal tanks, before being stocked with plants or seeds in pots, should have one inch of mud spread over the bottom.

SOWING SEEDS OF NELUMBIUMS. Cut a hole through the hard shell of each seed with a sharp knife and sow three or more seeds in May or June in a water bucket which has been filled four-fifths full with soil. Place outdoors in a warm sheltered spot, fully exposed to the sun and keep filled with water. The seeds should germinate in about two weeks' time and should be left undisturbed all summer, protected from frost in winter and planted in their permanent quarters the following May. This is best done by planting the bucket so that it will just be covered with surrounding soil. This causes no disturbance of roots of which all Nelumbians are very im-

patient of, and the new growing rhizomes will soon find their way over bucket into the fresh soil.

Aquariums and How to Care for Them

Aquariums, when properly stocked with fish and plants and given intelligent care, are one of the most beautiful and interesting ornaments which can be had for the house.

The best shaped aquarium is a rectangular glass or iron frame with glass sides and slate bottom of a size which will hold ten gallons or more of water. The larger the size the better will be the results, as a large body of water is less subject to temperature changes and is therefore better for both animal and plant life.

A good balance can usually be had by allowing two gallons of water to each medium-sized fish, using sufficient plants to make a pretty effect. One or two plants in each corner, with a center plant for large aquariums, is usually enough.

The usual way of stocking an aquarium is to place two inches of fine gravel in bottom in which to plant the plants, but we advise placing the plants in small flower pots, 2 to 2¼ inch size, using a very sandy or gravely soil, placing the pots where desired and filling in between and over the top of pots with gravel, broken rock or shells, making the same as irregular as possible, which will add greatly to the artistic effect; by this method the plants can be moved at will and, when the aquarium requires cleaning out, the plants can be removed without any damage.

Nearly all submerged aquarium plants obtain their nourishment from the water more than from the material in which they are planted, and for this reason plants potted into small pots, as stated above, will remain in good condition for a number of years with no more attention than an occasional pinch-

ing off of the long shoots so as to encourage new growth from the bottom.

An aquarium stocked in above manner should be placed in a window with a north or northeast exposure or, if such is impossible, far enough back from any window, so that the plants and fish will not be subjected to direct sunlight. The fish need only sufficient food so that they will eat it all at once. If a few Japanese snails and tadpoles are added, there should be no necessity of cleaning an aquarium oftener than once or twice a year, although it will be found good practice to remove one or more quarts of water each week, according to size of aquarium, replacing same with fresh water of as near the same temperature as possible.

It is also good practice to give fish a salt bath once a year, and never to put in a new fish without giving it a salt bath, and, if possible, hold it in a separate aquarium for a week or until all danger of fungis or other troubles are past. A tablespoonful of table salt to one gallon of water will make the proper salt bath, and the fish should be allowed to remain in same for about one hour.

Aquarium Fish and Plant Troubles— Their Causes and Remedies

MILKY WATER. Too much food. Stop feeding until water clears.

GREEN WATER. Green, brown or reddish growth on glass; green, brown or white hairs on plants. Caused by too much light. Shade and add a few more tadpoles and snails.

GREASY SCUM ON WATER. Caused by gases, either illuminating, sewer or organic. Remove cause, add floating plants, tadpoles and snails.

WHITE SPOTS OR WEB ON SAND, PLANTS AND FISH. Fungus growth. Add a pinch of salt, dissolved in a tablespoonful of water.

OFFENSIVE SMELL. Dead animal matter. Remove cause and, if very offensive, clean out aquarium, washing all contents thoroughly before refilling. A properly managed aquarium should never have any odor.

LEAVES AND STEMS OF PLANTS LOSING THEIR COLOR. Not enough light. Give more.

PLANT STEMS DECAYING NEAR BASE. Too tightly planted. Loosen soil or gravel or replant.

PLANTS UPROOTED. Improperly planted. Firm sand or gravel around roots and see that they are topdressed with good-sized pebbles or broken stone to keep fish from rooting in soil.

PLANTS LOSING LOWER LEAVES. Too much top growth. Pinch plants back so as to make them break into growth from bottom.

FISH ALL GASPING, NOSES OUT OF WATER. 1st: Lack of oxygen. 2d: Too many fish for size of aquarium. 3d: Impure water. Remove cause and re-oxyginate water by dipping water up and letting it splash back many times.

If careful attention is given to the foregoing warnings, there is no reason why any aquarium should not be successful and the water should not require changing more than once or twice a year. When making this change, it will be advisable to use part of old water in refilling, and great care should be taken to get temperature of fresh water as near as possible to that in which the fish were. There is nothing more dangerous to aquarium life than constant changing and cleaning of the aquarium.

PEONIES

"Queen of Spring Flowers"

Peonies are close rivals to roses, and during its short season inspires as much enthusiasm and rivalry among plant lovers as its older rival.

Plant good clumps in the fall. Every 3 or 4 years clumps should be divided and reset. Do not plant too deep. The roots should be placed so that the crowns are covered with 2 inches of soil.

Varieties

Albatre.....White shaded ivory.
Albert Crousse.....Pure shell pink.
Dorchester.....Late pink, dwarf.
Festive Marima.....White early.
La Perle.....White with blush center.
L' Indespensible.....Lilac white, tall.
Mad. Boulanger.....Glossy pink, late.
Mad. Ducel.....Pink, good bloomer.
Marguerite Gerard.....Creamy white.
Marie Jaquin.....White waxy.
Marie Lemoine.....Dwarf late, white.
Octave De May.....Pink, white collar.
Red Dragon.....Rich red.
Victoire.....Violet rose, salmon center.
Virginie.....Large, bright rose.

DAHLIAS

CULTURE. Dahlias are not particular as to the soil or location. Although maximum growth and bloom reward the full sun, some of the stronger sorts develop most perfect speci-

mens in partial shade; and localities with a moist atmosphere or dewy nights are apt to give better results than a drier air. A judicious use of fertilizer is always beneficial, but too much causes profuse foliage and stem at the expense ot bloom. Frequent cultivation prior to their blooming season is absolutely essential to success. Time for planting varies according to climate, but is generally safe after all danger of late frosts is past. Tubers should be planted about 6 inches deep, laid flat, eyes or sprout up. Although good, lively tubers are apt to produce more stalks, started plants give practically an equal amount of bloom.

Cactus Dahlias

Attraction.....Heavy stems, lilac-mauve.
Brunhilde.....Violet purple.
Mrs. Clinton.....Orange scarlet.
Winsome.....Creamy white.
Kalif.....Turkey red.
Strahlen Krone.....Cardinal, purple center.
Break O'Day.....Sulphur yellow.

Decorative Dahlias

Delice.....Light pink.
Chieftain.....Light red, splashed with yellow.
Daphne.....Pink, shading to white.
Mina Burgle.....Dark scarlet.
Mont Blanc.....Creamy white.

Show Dahlias

A. D. :ivoni.....Clear pink, quilled petals.
Arabella.....Yellow, edged with peach blossoms.
Cuban Giant.....Bright maroon.
David Warfield.....Cherry red.

Dee-light.....Pure white.
Dorothy Peacock.....Shell pink.
Dreer's Yellow.....Yellow, profuse bloomer.
Dreer's White.....Glistening white.
Emily.....Solferino, white markings.
Ethel Britton.....Creamy white.
Red Hussar.....Cardinal red.
Susan.....Shell pink.
White Swan.....Pure white.
Yellow Duke.....Yellow.

Peony Flowered

Berche van Heemstede.....Yellow.
Caecilia.....Large white, yellow center.
Chatenay.....Carmine rose.
Dr. Peary.....Reddish mahogany.
Geisha.....Scarlet and gold.
Variegated Franz Liszt.....Reddish purple.

GLADIOLUS

For a succession plant at intervals from April till June. Plant 6 inches apart and 4 inches deep.

Varieties

American.....Pink.
Augusta.....Pure white.
Baron Hulot.....Violet blue.
Glory.....Ruffled, creamy white.
Klondike.....Yellow with maroon.
Mrs. Francis King.....Vermilion red.
Niagara.....Creamy yellow.
Peace.....Pure white.

Schwaben.....Yellow, garnet throat.
Princeps.....Dazzling scarlet.
Capt. Ferber.....Pale violet, blotched violet amaranth.
Pink Perfection.....Pink.
Yellow Hammer.....Yellow.

CALADIUMS
(Elephant Ear)

For best results, they must have plenty of water and a deep well manured bed.

Best results are obtained from large sized bulbs, which must be taken up or protected during winter.

TUBEROSES

Delightfully fragrant; fine for bouquets. Plant when ground gets warm. Give plenty of water.

Albino.....Single white.
Pearl.....Double white.

IRIS
(Flag Lilies)

Do not plant clumps too deep, and do not use fresh stable manure.

Iris make a rich, evergreen, dense border.

German Iris

Lohengrin.....Violet, mauve, large.
Queen of May.....Soft rose.
Fulda.....White and feathered yellow.

Johan de Witt.....Bluish violet, veined with satin.
Lorely.....Fall, a deep ultramarine-blue bordered with yellow creamy white viens.

Japan Iris

Tora-odori.....Pure white traced with violet.
Yomo-no-umi.....Creamy white.
Yoshimo.....Creamy white, veined with violet.
Nagona.....Violet purple.
Mahogany.....Mahogany red, late.

CANNAS

CULTURE. No other bedding plant will give the same uniform good results in our trying and varied climate than Canna lilies. They do well in all sections of the country, and stand pre-eminently at the head of the list, succeeding in any sunny position in any kind of soil, but responding quickly to liberal treatment.

Spade beds 2 feet deep using a liberal amount of stable manure thoroughly incorporated and at all times supplying water freely. Set plants 2 feet apart.

Dazzler.....Green foliage, red.
Dr. E. Ackerknecht.....Carmine.
Eureka.....White.
Finale.....Fiery red.
Favorite.....Yellow, spotted with red dots.
General Merkel.....Brilliant scarlet.
King Humbert.....Bronze foliage, scarlet.
Meteor.....Blood red.
Orange Bedder.....Bright orange.
Uhlberg.....Rosy carmine.
Wyoming.....Orange flowers.

HARDY DECORATIVE FLOWERING SHRUBS

ALMOND. Prunus Japonica flora alba plena, white, 2-3 feet. Double white fragrant flowers.

ALMOND. Prunus Japonica flora rubra plena, red, 2-3 feet. Double red fragrant flowers.

BARBERRY, JAP. Barberis, 1-2 feet. Good for hedges and specimens, scarlet berries in fall.

BETTERFLY BUSH. Buddeya, variabilis, lilac, 5-7 feet. Flowers continuously all season.

CRAB. Malus, Pink, 3-4 feet. Double highly fragrant flowers.

DEUTZIA. Candidissima, white, 5-6 feet. Flowers in June.

DEUTZIA. Crenata Rosea, white pink tinged, 5-6 feet. Double flowering.

DEUTZIA. Gracilis, white, 2-3 feet. Dwarf bushy habit.

DOGWOOD. Cornus Florida, white, 7-8 feet.

DOGWOOD. Cornus Rubra, pink, 7-8 feet.

EUONYMOUS, JAP. Aurea Var. evergreen, 6-8 feet.

GLOBE FLOWER. Kerria, yellow, 3-4 feet. Double flowers; May and June.

GOLDEN BELLS. Forsythia, yellow, 4-5 feet. Flowers first warm days after winter.

HONEYSUCKLE. Lonicera Jap., Bush, white, 3-5 feet. Bright red berries in fall.

HYDRANGEA. Arborescens Gf. Alba, white, 3-4 feet. Snowball large flowers, very showy.

HYDRANGEA. Paniculata Gf. white, 3-4 feet. Good for specimens or in masses.

LILACS. Syringa Persian, purple, 4-5 feet. Profuse bloomer.

LILACS. Syringa Vulgaris alba, white, 7-9 feet. Old fashioned lilacs.

LILACS. Syringa Vulgaris, alba, white, 7-9 feet.

MOCK ORANGE. Philadelphus, white, 6-8 feet. A good old fashioned shrub.

PEPPER BUSH. Clethra Alnifolia, white, 5-6 feet. Beautiful white spikes in July.

PLUM. Prunus Pissardi, pink and white, 8-10 feet. Lustrous foliage till frost.

QUINCE. Pyrus Japonica, red, 7-9 feet. Beautiful cherry red flowers, fruit is edible.

ROSE OF SHARON. Althea alba, white, 7-9 feet. Double.

ROSE OF SHARON. Althea Atropurpurea, purple, 7-9 feet. Double.

ROSE OF SHARON. Althea Duchess de Brabant, red, 6-7 feet. Double.

ROSE OF SHARON. Totus albus, white, 5-6 feet. Single.

SNOWBALL. Vibernum, Plicarn Jap., white, 4-5 feet, This little Jap should be in every lawn.

SNOWBALL. Viburnum opulus sterilis, white, 9-12 feet. Common white.

SPIREA. Anthony Waterer, crimson, 18-24 inches.

SPIREA. Bridal wreath, white, 4-5 feet. Very showy wreath.

SPIREA. Billardi. 4-5 feet.

SWEET SHRUB. Calycanthus, chocolate color, 4-5 feet. Sweet smelling shrubs.

WEIGELIA. Amabilis, pink, 4-6 feet.

WEIGELIA. Candida, white, 4-8 feet.

WHITE FRINGE. Chionanthus, white, 7-9 feet.

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